



MUSEUMS & GALLERIES
COMMISSION

Standards
in the
Museum
Care of Photographic
Collections.
1996

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Office



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Foreword

Mark Haworth-Booth, Curator of Photographs,
Victoria & Albert Museum, London

Photography is different. It needs the special kind of care and attention set out in this valuable publication - which, I am glad to see, also embraces photography's dashing younger sibling, film, (plus its step-sister, video), and their fashionable associate, electronic imaging.

Photography is different because it has - like a perpetual adolescent - always had an identity problem. Perhaps this helps to explain its perennial fascination. Is it an art, a science, a craft or an industry? Addressing this problem in a famous article, published nearly 140 years ago, in 1857, Lady Eastlake wisely wrote that photography is 'neither the province of art, nor description, but of the new form of communication between man and man - neither letter, message, nor picture - which now happily fills the space between them'. The national collection of the art of photography at the Victoria & Albert Museum has a long and interesting history which throws light on the mutability of the medium. Before the South Kensington Museum, ancestor of the V&A and the Science Museum, even opened its doors on the Cromwell Road in 1857, Henry Cole, its founding director, had bought photographs at the annual exhibition of The Photographic Society of London. He acquired fine examples representing the nude, still life, landscape and genre. In 1858 the young Museum hosted the annual exhibition of both the London Society and the Société française de photographie. Photography was intensely fashionable in the 1850s - just as it was to become again in the 1970s. Its first wave of success occurred just before photography became industrialised around 1860. The world-wide re-discovery of photography as a creative medium occurred after television took over many of the roles of still photography during the 1960s. This volatile medium is very responsive, of course, to changes in the political economy of the visual media.

Sir Roy Strong, director of the V&A from 1974-1988, played a major role in deciding the identity of photography in the Museum by transferring the Photography Collection from the National Art Library, where it had its origins in the 1850s, to the Department of Prints, Drawings and Paintings. The Photography Collection became part of the history of graphic art (instead of an accessory to printed books). The shift was not only a statement about identity but a recognition that photographic surfaces need the same careful treatment as other works on paper.

Did I say 'the *same* careful treatment'? Not exactly. Photographs have a chemical/physical make-up that is more complex than most works on paper. The medium with an identity problem also has a delicate constitution, with a series of allergies to such pollutants as sulphides and peroxides which can react with and degrade the silver common to most photographic processes. A careless finger tip can irrevocably destroy the image on a Daguerreotype plate. A misplaced finger and thumb, roughly grasping a modern photograph, can produce 'sea- gulls' which ruin the surface and therefore the illusion of a gelatine-silver or C-type colour print. New paint on an exhibition gallery wall can ruin great photographs - as happened, for example, in the International Exhibition of 1862. Apparently robust photogenic drawings can fade forever in 'normal' exhibition lighting.

Photography has also been made much more complex by its very success. Unlike most graphic media, it is not only collected by museums but used by them. Henry Cole set up the first photographic service in a Museum the same year as he began our Photography Collection. Photography has become as plentiful, necessary and generally flavourless as water. We all use it and may become rather too casual in doing so. Thus, anyone caring for photographic collections may need to make decisions about how to look after different branches of the medium - primary, secondary, artistic, archival, and so on - and to make sure that all their colleagues become used to handling photographs with respect and become sensitive to the variety and value of which the medium is capable.

There has been a great advance in the proper treatment of photography in museums around the world in the past generation. I very warmly welcome this excellent publication as a way of extending the impetus still wider.

Introduction

This booklet is one of a series being published by the Museums & Galleries Commission (MGC), setting out standards in various areas of museum work. Those already published cover the museum care of archaeological, biological and geological collections, larger and working objects and musical instruments.

In this series the Museums & Galleries Commission aims to distil current professional consensus on what constitutes best practice in caring for museum collections.

The purpose of this booklet is to set down standards for the museum care of photographic collections, and to provide guidance on the interpretation of those standards. It aims to include photographs as historic artefacts as well as photographs as images. It also covers film, video and electronic images, though in rather less detail. It does not cover equipment such as cameras, projectors, etc.

To draft this booklet, the Museums & Galleries Commission drew together a group of practising curators, archivists and conservators, and this publication is the result of their work. The standards represent a consensus of current professional opinion of best practice every museum should aspire to reach. 'Aspire' is the key word. We take the pragmatic view that not all museums will be able to achieve all of them in the short-term. We hope, however, that every museum will work actively towards them.

There exist a variety of standards, both national and international, that relate to photographic materials. These include British Standards, ISO and ANSI. Research on the subject is being undertaken around the world and the result is that the standards themselves are continually being revised and updated. To many the situation is confusing and the various standards appear, on occasion, to offer contradictory advice. We have endeavoured in this publication to incorporate the common elements from these standards and combined this with the knowledge of expert advisers who between them have an immense amount of practical experience of managing and preserving collections of photographic materials of all types.

How to use this booklet

We envisage that these standards will be used in a variety of ways:

- A curator is asked to draw up a schedule of objectives and performance indicators for the care of collections. The national standards in this booklet will be a benchmark for the museum's own objectives and performance indicators.
- An auditor (internal or external) may wish to review how a local authority is looking after its collections. This booklet will give defined national standards against which achievement may be measured.
- A curator is trying to persuade a museum governing body to make more resources available for care of collections. This booklet will help make the case.
- A museum or organisation involved with training in the heritage sector could use the Standard when preparing or delivering training programmes for staff or volunteers.
- A curator of a social history or decorative arts collection has a collection of photographs, films and videos, and needs advice on their care.
- A local history museum run by volunteers is reviewing its acquisition policy, and is looking for guidance on the implications of acquiring various classes of material. This booklet will help in drawing up a sensible policy reflecting the constraints posed by the museum's resources.
- A designer is asked to design a new display or store to contain photographs and related items. This booklet sets out the standards of security, environmental control, etc., that should be attained.
- A grant-giving body needs reassurance that a museum applying for a grant will use the money responsibly. These standards enable it to judge whether the museum is likely to do so.

While this booklet is addressed primarily to museums, the Museums & Galleries Commission hopes that archives, libraries and private collectors, too, may find it useful.

Each aspect of caring for collections is divided into three Sections:

- The Standards themselves. These are the standards at which every Museums & Galleries Commission Registered museum should be aiming. Larger and specialist museums may already be meeting even higher standards.
- *Guidelines and notes* explaining and enlarging on the standards.

- *Sources of advice and help:* generally one or two basic publications and a first-stop address.

We have tried in each Section to achieve a balance between the principles and detailed guidelines.

The Museums & Galleries Commission is grateful to the Department of National Heritage for funding its Standards Development Programme, and to the members of the Expert Group and others who gave their help. They are listed below.

Users of the booklet are warmly invited to comment on its usefulness, and to make suggestions for improvements - or even for a new approach - for a second edition.

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The Conservation Unit,
Museums & Galleries Commission
Independent conservator specialising in photographs
National Film and Television Archive
Wellcome Centre for Medical Science
Manchester University
Pitt Rivers Museum
Fox Talbot Museum of Photography
Public Record Office
National Railway Museum
National Library of Wales
Museums & Galleries Commission
Wessex Film and Sound Archive,
Hampshire Record Office
The Victoria & Albert Museum
North Down Heritage Centre
Public Record Office
National Museum of Photography, Film and Television
Museums & Galleries Commission
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National Museums and Galleries of Wales
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Scottish Museums Council
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Council of Museums in Wales
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National Museum of Photography Film & Television

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The Museums & Galleries Commission would like to thank the National Museum of Photography, Film & Television, Bradford, for their kind permission to reproduce their Loan Form and Guidance Notes in Appendix A, and is very grateful to all the above for their comments and suggestions.

Part One: Managing Collections

Collecting

- 1.1 The museum's governing body should approve a detailed acquisition and disposal policy, which should be reviewed formally at least every five years.
- 1.2 The museum should ensure that it secures legal title to photographic collections it acquires, and that the ownership of copyright is determined.
- 1.3 Every photographic item should be acquired in accordance with the guidelines set out in the Museums & Galleries Commission's *Registration Scheme for Museums and Galleries in the United Kingdom: Registration Guidelines, 1995*, and with the law.
- 1.4 Once a decision has been taken formally to acquire an item for a museum's permanent collection, there must be a presumption against disposal. If disposal of an item is considered, it must be undertaken in accordance with the procedure outlined in the Registration Scheme Guidelines.

Guidelines and notes

Collecting and disposal policy

- 1.5 Virtually every museum has photographic items in its collections. Many museums own far more photographic items than they realise, for they are frequently acquired quite casually and are often generated in great quantities by the museum itself. Photographic items may be acquired, for example:
 - As social history records, where sometimes the photograph, film or video is seen as a valuable artefact, and sometimes just the image is valued; for example, a view of a local Edwardian street-scene.
 - As works of art, where usually both artefact and image are valued; for example, a work by Julia Margaret Cameron.
 - As part of the documentation of other museum objects; for example, a film, video or photograph of a racing car in action at Brooklands, or a record photograph of that car taken during conservation in the Museum.
- 1.6 It is important that every museum defines why it collects photographic items, and what photographic items it wants to acquire. This will have important implications for the way in which it looks after and documents its photographic collections.
- 1.7 The museum should distinguish clearly between photographic items accessioned into its permanent collections and photographic items acquired for other purposes, for example, documentation or display. Both, however, need good management systems (see 2.3 and Section 3 Documentation), if only to facilitate the transfer, at some time in the future, of items from the latter to the former, eg. copying of moving film to allow access.
- 1.8 Photographic items should be explicitly referred to in the museum's Acquisition and Disposal Policy, a document required by the Museums & Galleries Commission's Registration Scheme. In drawing up that Policy, museums should liaise not only with other museums locally or with allied interests, but with record offices and libraries which collect similar material. Photographic items are very often held by all three institutions and it may well be sensible for museums, record offices and libraries to rationalise holdings of photographic items within an area, to promote efficiency of public access.
- 1.9 Museums should constantly bear in mind the cost implications of acquiring photographic items. Museums are sometimes offered large collections; it is important that, before these are accepted, the donor is asked to permit the museum to weed out those items not wanted for the permanent collection. A note about the group in its entirety should be recorded on the entry form before any weeding takes place.

- 1.10 Where, however, a museum is offered a photographic collection which is an *archive* - that is, items produced as part of administrative or executive transactions and kept for their value as evidence; an example might be a company's photographs of its products - then the collection should not be broken up or weeded without the most careful consideration and discussion with professional archivists. Photographic items may also be acquired as part of a larger paper archive, in which case they should be kept together with that archive, or at least the association should be recorded. Museums should follow the *Code of Practice on Archives for Museums in the United Kingdom*, and the relevant Record Office should be consulted.
- 1.11 There are specific legal restraints on recording off broadcast channels. The National Film and Television Archive can advise.
- 1.12 Museums could avoid building up problems for the future by ensuring that all *new* material it commissions, collects or produces in-house, is produced on the most stable material available and processed to archival standards. All negative material should be on a polyester base and processed to remove all fixer. Black-and-white film should be washed so that the residual fixer content is less than 0.007 grams/square metre as described in ANSI IT 9.1 and preferably stabilised with selenium or sulphur toner to ANSI IT 9.15. This can be used for resin-coated papers.

Video artworks

- 1.13 On acquisition it is recommended that the master tape is checked for correct colour bars and tone at the beginning of the tape. These bars correspond to standard electronic signals and set the parameters of the colour throughout the video. The colour bars provide a reference point to which the chrominance and luminance of all subsequent copies made are calibrated. Finding objective reference points is the best way of preserving the artist's intent. See 11.29 - 11.32.
- 1.14 If possible, the artist should be asked to view the work on a correctly calibrated monitor and to agree that this is how the work should look. It is possible using a signal generator to then calibrate exhibition equipment to this standard.
- 1.15 The visual effect of a video artwork is greatly affected by the machinery used to playback the video. In the case of video installations the conditions under which the work is seen is often prescribed in detail by the artist. Careful documentation of these details is very important.

Copyright

- 1.16 It is essential that every museum understands the copyright issues surrounding items in their collections. These issues will affect every aspect of museum activity: acquisition, display, publication, and so on. Because of the complexity of copyright law, museums should seek specialist advice from the sources below.
- 1.17 In addition it should be noted that UK copyright legislation was amended on 1st January 1996 to reflect the changes recommended by the European Commission's Directive on the Harmonisation of Copyright Duration in the European Community. In brief this means that the duration of copyright has been increased from 50 to 70 years. The complex implications of this legislation will affect many museums. For example, a photographic item which was out of copyright on 31st December 1995 may have come back into copyright on 1st January 1996. At the time of writing there is no guidance in print on this complicated area of law.
- 1.18 Copyright law differs significantly between still photography and the various forms of motion picture film. Copyright in a motion picture film could rest, for example, with the production company, the sponsor, the author of the underlying literary work or with other individuals or organisations. Photographs and films may also include items such as works of art which have their own copyright. In addition, it should not be forgotten that copyright law covers all recording media, including video and all electronic and magnetic forms such as VHS and CD ROM. Advice should be obtained from the sources listed below.

See also 4.15

Sources of advice and help

- Advice on drafting an Acquisition and Disposal Policy (usually included as part of a Larger Collections Management Policy) can be obtained from the Area Museum Councils.

The Committee of National Photographic Collections is an informal group of curators which aims to co-ordinate collecting by the major national institutions. Members of the Committee will be glad to give advice on assessing the historic and technical importance of photographic items:

Mark Haworth-Booth (Victoria & Albert Museum)

Iestyn Hughes (National Library of Wales)

Peter James (Birmingham Library Services)

Bridget Kinally (British Film Institute)

Jo Matthews (Public Record Office)

Terence Pepper (National Portrait Gallery)

Hilary Roberts (Imperial War Museum)

Pam Roberts (Royal Photographic Society)

Tony Rumsey (National Buildings Record)

Sara Stevenson (Scottish Photography Archive at the Scottish National Portrait Gallery)

n/a (National Museum of Photography Film & Television)

A full list of addresses, and relevant telephone and fax numbers is given in Appendix E.

- Guidance on dealing with photographic archives is included in:

Museums & Galleries Commission (MGC). 1996. *Code of Practice on Archives for Museums in the United Kingdom*. London: MGC.

- Advice on liaison with Record Offices and Libraries can be obtained from:

Christine Heap

Secretary

Standing Conference on Archives and Museums

National Railway Museum

Leeman Road

York YO2 4XJ

Tel: 01904 621262

Fax: 01904 611112

- A valuable introduction to collecting photographs, though aimed at the private collector, is:

Martin, Elizabeth. 1988. *Collecting and Preserving Old Photographs*. London: Collins.

- Valuable short introductions to the approach of historians and ethnographers to photographic items, and to the recording of their context, are:

Griffiths, Gareth and Gaby Porter. 1993. 'Photographs and Films'. In *Social History in Museums: A Handbook for Professionals*, eds. Fleming, David, Crispin Paine and John Rhodes. London: HMSO.

Samuel, Raphael. 1994. *Theatres of Memory*. London: Verso.

- The following works illustrate how photographic items can be used as an historical source and the need for careful analysis of their context; all these works have methodological significance despite their diverse subject matter.

Edwards, Elizabeth, ed. 1992. *Anthropology and Photography 1860-1920*. London/New Haven: Yale University Press.

Geary, Christraud. 1988. *Images of Bamum*. Washington: Smithsonian Institution Press.

Graham-Brown, Sarah. 1980. *Palestinians and Their Society 1880-1946: A Photographic Essay*. London: Quartet Books.

Levine, R. 1989. *Images of History: 19th and early 20th-Century Latin American Photographs as Documents*. Durham, N.C.: Duke University Press.

National Portrait Gallery. 1991-93 (published in 4 volumes). *Fashion in Photography*. London: Batsford/NPG.

Ruby, Jay. 1995. *Secure the Shadows: Death and Photography in America*. Cambridge, Mass.: MIT Press.

- A good introduction to identifying photographic processes is:

Baldwin, G. 1991. *Looking at Photographs: A Guide to Technical Terms*. London & California: British Museum Press and J. Paul Getty Museum.

- A helpful introduction to copyright law is:

British Photographers Liaison Committee (BPLC). 1994. *The ABC of UK Photographic Copyright*. London: BPLC.

BAPLA can also help its members through its copyright sub-committee.

British Association of Picture Libraries and Agencies (BAPLA)
18 Vine Hill
London EC1R 5DX
Tel: 0171 713 1780
Fax: 0171 713 1211

- A useful introduction to film is:

Coe, Brian. 1981. *The History of Movie Photography*. London: Ash & Grant.

- Copies of American National Standards for Imaging Media (ANSI) are available from:

Image Permanence Institute
Rochester Institute of Technology
70 Lomb Memorial Drive
Rochester NY
U.S.A.
Tel: 001 716 475 5199
Fax: 001 716 475 7230

- The principal film and video archives in the U.K. are:

East Anglian Film Archive
(Tel: 01603 592664)
Imperial War Museum
(Tel: 0171 416 5000)
Irish Film Archive of the Film Institute of Ireland (Tel: 00 35 31 6795744)
Lincolnshire & Humberside Film Archive
(Tel: 01775 725631)
National Film & Television Archive
(Tel: 0171 255 1444)
North West Film Archive
(Tel: 0161 247 3097)
Northern Association of Film & Television Collections (Tel: 0191 232 6789)

Scottish Film Archive (Tel: 0141 334 4445)
South East Film & Video Archive
(Tel: 01273 643105)
TSW Film & Television Archive for the South West (Tel: 01752 663322)
Wales Film & Television Archive
(Tel: 01970 626007)
Wessex Film & Sound Archive
(Tel: 01962 847742)
Yorkshire Film Archive
(Tel: 01765 602691)

Museums can also obtain advice and help on the collection, management and disposal of film and video from:

National Film & Television Archive
The British Film Institute
21 Stephen Street
London W1P 1PL
Tel: 0171 255 1444
Fax: 0171 436 7950

Society of Archivists Film and Sound Group
Society of Archivists
Information House
20 - 24 Old Street
London EC1V 9AP
Tel: 0171 253 5087
Fax: 0171 253 3942

Fédération Internationale des Archives du Film (FIAP)
Secretariat
rue Franz Merjay 190
1180 Brussels
Belgium
Tel: 00 32 2 343 0691
Fax: 00 32 2 343 7622

Curation and conservation

- 2.1** Every museum with photographic collections should ensure that it has available an adequate range of specialist advice.
- 2.2** It should be the aim of a museum to have photographic items in its collection examined by a specialist curator or conservator at least every 5 years.

Guidelines and notes

- 2.3** The first requirement of every museum is to know what it has in its collection. Museums need to quantify the number of photographic items they hold, and should think of photographic items as distinct and important collections requiring planned care.
- 2.4** Museums need to ascertain whether their photographic collections comprise positives or negatives or both, and what 'generation' of positives they hold, ie. first generation prints from original negatives or copy prints. It is also important to know what type of photographic materials it holds, eg. cellulose nitrate base film or the more stable Safety film. The information outlined in 2.1 and above is essential if the museum is to be able to make an informed decision on its priorities and to make appropriate decisions on the allocation of the resources available for care of the collections.
- 2.5** At present only a few museums in the UK employ curators dedicated to their photographic collections, though probably every one of the 1700 or so Registered museums holds photographic items. It is imperative that museums recognise the importance, value and vulnerability of their photographic collections and plan for their care.
- 2.6** All the photographic collections should be the clear responsibility of an identified person, whether paid or unpaid. If they are not specialists, all those routinely involved with the collections should receive appropriate training to ensure competence, and the museum should make arrangements for regular access to both specialist curatorial and conservation expertise.
- 2.7** A full curatorial and conservation audit of the photographic collections should be carried out at least once every 5 years, while nitrate base films should be inspected for signs of deterioration much more often (see Sections 8 and 11). In the case of film and video, such specialist help could come from one of the principal film and video archives (see Section 1). Following the review, the museum should draw up an action plan, and act on it.
- 2.8** The full audit (at least every 5 years) should:
- check every photographic item against its documentation;
 - assess the importance of all photographic items, whether from the point of view of authorship, provenance, technique or the value of its image as information;
 - identify the environmental, storage and security needs of the collections, and any conservation problems;
 - identify those photographic items which should be accessioned into the museum's permanent collections;
 - identify those images which should be retained as part of the museum's documentation;
 - identify those photographic items which would be more appropriately held by another museum, library or record office.
- 2.9** In very large collections, it may be necessary to extend the period between full audits in which every item is checked, and supplement these with audits in which a sample is taken. Great care should be taken in designing such sampling programmes to ensure adequate coverage of the full range of material in the collection.

- 2.10 The conservation audit of photographic materials should examine for signs of deterioration including:
Physical: flaking, tears, creases, stretching, shrinkage, cockling;
Chemical: discolouration, tarnishing, stickiness, pungent aroma, fading;
Biological: mould, insect and rodent damage.
 Fuller details are given in Section 11.
- 2.11 Museums which do not have the resources to care for their photographic collections should seriously consider passing them on to another museum which does. One possibility is to pass on the originals, but to keep working copies. Motion picture films should certainly be passed on if the museum does not have full facilities for storing and viewing them. Such 'passing on' must be in accordance with the Museums Association's ethical code for acquisitions and disposals and the MGC's Museum Registration Scheme.
- 2.12 The museum's Collections Management Policy should seek to ensure that the resources available to the museum match the needs of the photographic collections.
- 2.13 The materials and processing used to duplicate or copy original or master copies of photographic items (negatives, film or prints) should be done using archival quality techniques and materials. (See 1.12)
- 2.14 Collections management computer programmes are available and under development. A consortium of national and major provincial museums in the UK have co-operated to develop a system currently known as the Larger Scale Systems Initiative (LASSI). This is due to be delivered to the consortium members during 1995-96 and will then be available to other museums.

Sources of advice and help

- Members of the Committee of National Photographic Collections can offer advice (see Section 1).

- Both the National Museum of Photography, Film & Television and the British Film Institute can arrange training, or advise on the development of a suitable programme, for museum staff on the care of photographic items. Short courses are also arranged from time to time by the Area Museum Councils, national museums and other agencies.

- The ICOM Conservation Committee has a Photographic Records Group which encourages research and publishes a newsletter giving details of current initiatives. Meetings are held regularly.

ICOM-CC Photographic Records Group
 Co-ordinator: Bertrand Lavéderine
 CRCDG
 3 rue Geoffroy-Saint Hilaire
 75005 Paris
 FRANCE

- The Photographic Materials Conservation Group is a recently formed group which brings together individuals and institutions interested in the preservation and conservation of photographic materials. For further information contact:

David Parker
 Conservation Department
 Public Record Office
 Ruskin Avenue
 Kew
 Surrey TW9 4DU
 Tel: 0181 876 3444
 Fax: 0181 878 8905

- The Conservation Register is a national database maintained by The Conservation Unit of the Museums & Galleries Commission. It contains details of qualified and experienced independent conservation practices which provide specialist conservation services and advice. A parallel Conservation Register database is administered by the Scottish Conservation Bureau of Historic Scotland.

The Conservation Unit (Register)
Museums & Galleries Commission
16 Queen Anne's Gate
London SW1H 9AA
Tel: 0171 233 3683
Fax: 0171 233 3686

Scottish Conservation Bureau
Historic Scotland
Longmore House
Salisbury Place
Edinburgh EH9 1SH
Tel: 0131 668 8668
Fax: 0131 668 8669

- The following leaflets published by The Conservation Unit of the Museums & Galleries Commission may be found helpful:

Choosing a Conservator: Conservation Register

Conservation - Restoration: The Options

Working with a Conservator: A Guide for Curators

- The Area Museum Councils and the Museum Training Institute can give advice on training:

Museum Training Institute
First Floor, Glyde House
Glydegate
Bradford BD5 0UP
Tel: 01274 391056/391087/391092/391773
Fax: 01274 394890

- Helpful introductions to managing photographic collections include:

Alvey, Jane and David Cleveland.
(forthcoming). *The Handling and Care of Film and Video*.

Coe, Brian and Mark Haworth-Booth.
1983. *Guide to Early Photographic Processes*. London: Victoria & Albert Museum.

Hendriks, Klaus B. 1984. *The Preservation and Restoration of Photographic Materials in Archives and Libraries: A RAMP Study with Guidelines*. Paris: UNESCO.

Hendriks, Klaus B. 1991. *Fundamentals of Photograph Conservation: A Study Guide*. Toronto: National Archives of Canada and Lugus Productions.

National Archives of Canada. 1993. *Managing Photographic Collections in the Government of Canada*. Ottawa: National Archives of Canada.

Gordon, Paul L., ed. 1983. *The Book of Film Care*. Rochester NY: Eastman Kodak Company.

Reilly, James M. and Constance McCabe. 1986 (Kodak publication No G-25). *Care and Identification of 19th-Century Photographic Prints*. Rochester NY: Eastman Kodak Company.

Reilly, James M. 1993. *The IPI Storage Guide for Acetate Film*. Rochester NY: Image Permanence Institute.

Ritzenthaler, M. L. Gerald J. Munoff and Margery S. Long. 1984. *Administration of Photographic Collections*. Basic Manual Series 1. Chicago: Society of American Archivists.

Clark, S. 1989. *Photographic Conservation*. London: National Preservation Office.

Audiovisual Group of the Library Association of Scotland (AVSCOT). 1993. *Stop the Rot: Practical AV Preservation for Small Collections*. Glasgow: AVSCOT.

- A good introduction to the identification of photographic materials is:

Robb, Andrew and Monique Fischer. 1994. 'Guidelines for Care and Identification of Film-Base Photographic Materials' in *Topics in Photographic Preservation*, vol. 5. Washington: American Institute for Conservation Photographic Materials Group.

Documentation*

-
- 3.1 Every photographic item should, wherever possible, have its own object documentation file. This should systematically record technical information and details of the context of the item.
 - 3.2 Documentation of photographic items should be in accordance with, and at least to the minimum standards set out in, *SPECTRUM: The UK Museum Documentation Standard*.
 - 3.3 Documentation, including that recorded on paper, microfilm, computer disc and magnetic tape, should as far as possible be maintained to the standards set out in Appendix B.

Guidelines and notes

- 3.4 The standards to which photographic collections, as all museum collections, should be documented, are set out in *SPECTRUM: The UK Museum Documentation Standard*. These are summarised in the booklet *SPECTRUM Essentials*.
- 3.5 These minimum standards are conveniently summarised in the *Registration Guidelines* for the second phase of the Museums & Galleries Commission's Registration Scheme for museums and galleries in the United Kingdom:
 - a **Entry and Exit Records** (SPECTRUM Procedures 1 and 16: Object Entry, Despatch)
There should be an unique record written of any item that enters the museum, whether for identification, loan or as a potential acquisition. This system should also provide a means of recording the return of items to owners, either by endorsement of the entry record, or by the use of a separate exit record.
 - b **Location/Movement Recording** (SPECTRUM Procedure 5: Location and movement control)
Similarly, the location and movement of items within the museum should be recorded, usually by altering the entry in the accession register, OBJECT HISTORY FILE, and/or catalogue cards.
 - c **Accession Records** (SPECTRUM Procedure 3: Acquisition)
Each museum should maintain an accessions register, whether written or computerised, which records the formal acceptance of items into the museum's permanent collection, allocates a permanent identity number, and provides sufficient information for collection management purposes.
 - d **Security Copy of Accession Records** (SPECTRUM Procedure 3: Acquisition)
A second copy of the museum's accession records should be kept off-site. Where accession information is wholly computerised it should be supported by a copy of key accession information produced in an alternative medium which meets proven archival standards.
 - e **Marking and Labelling** (SPECTRUM Procedure 3: Acquisition)
Each accessioned item or, where appropriate, group of items, should be marked or labelled with its permanent identity number without damaging the item.

Footnote

* 'Documentation' in this booklet means all the recorded information a museum holds about its collections, and also the gathering, storing, manipulation and retrieving of that information.

f Information Retrieval (SPECTRUM Procedure 6: Cataloguing)

Each museum should maintain appropriate indexes or equivalent information retrieval facilities. The accessions register provides a method of retrieving information about items in the collection by their identity number: there must be at least one other method of retrieving information, such as by location, donor or subject categories appropriate to the needs of museum users.

g Loan Records (SPECTRUM Procedures 2 and 7: Loans in, Loans out)

Museums should maintain records of all loans, whether incoming or outgoing. Long loans should be subject to fixed terms which should be periodically reviewed. The term 'permanent loan' is ambiguous and should be avoided. Museums should operate an effective collections management regime which includes auditing loans on a regular basis. It is also advisable to review periodically the terms and conditions relating to all loans. Detailed advice on procedures will be available from MDA, while a Standard Facilities Report has been drawn up by the UK Registrars Group. (See also Section 5.)

- 3.6 Whilst photographic items should always be accessioned into the primary Accession Register, these records are often integrated with those of non-photographic items. It is helpful in such cases to duplicate these accession records into one or more separate photographic indices, thus making access to this information much faster. A Donor/Owner Index could be used to hold information on who has copyright.

Object documentation

- 3.7 While it is desirable to document/catalogue every single photographic item individually, that is not always possible straight away, and large collections have sometimes to be documented/catalogued initially only to collection level. In those cases these should include as full a description and as precise enumeration as possible. The museum should build in to its forward plan the full documentation of such collections.

- 3.8 When photographic items are acquired, either directly (ie. by gift, donation, etc.) or through the sale room, the museum has a heavy responsibility to document every scrap of available information about them, their history and context. The Standards, Guidelines and notes in this Section address the question of preserving information about a photographic item's context.

- 3.9 Information relating to a photograph, film or video, etc, may include:

- why it was made;
- what it depicts (including date and location);
- status of item (ie. original negative, copy negative, master print, print derived from master negative or copy negative, print from a now lost negative, etc.);
- by whom it was made and processed;
- by whom it was commissioned;
- who trained the photographer or film-makers, and where;
- the photographic process (what it is made of, where the materials were obtained and prepared);
- what equipment was used;
- the original cost;
- where, when or how it was owned and transferred;
- where and when it was published, shown or used;
- by whom it was owned, and perhaps modified;
- the history of any damage, repairs, alterations, cropmarks or retouching;
- the social and economic background of the photograph;
- the technical and artistic background of the photograph;
- location of its corresponding negative or positive, if any;
- the copyright holder; if the photographer, then name and date of death should be recorded.

- 3.10 The law of copyright makes essential the recording not only of the name of the photographer or other copyright holder, but his or her date of death.

- 3.11 A record should be kept of object usage, such as the copying of photographic material or production of new prints from negative film, etc.
- 3.12 A record should be kept of all condition checks; conservation, restoration and repair work; and of treatment against pests.
- 3.13 Museums should record the photographic items they themselves generate in as much detail as possible, not least because such items may in the future be transferred into the permanent collections. At the very least subject, date, location, photographer/camera man and film type should be documented.
- 3.14 There is no one thesaurus suitable for all photographic collections, but what matters is that each museum uses a consistent terminology for documenting photographic items. Some thesauri currently in use are listed below.
- 3.15 Guidance for the documentation of film and video include:
- never trust labels: always check the contents;
 - mark the identity number on film leaders as well as cans, and on video carriers as well as their containers;
 - seek advice on formats, gauges, chemical composition, soundtracks and other identifying characteristics;
 - only use the appropriate film-handling equipment, and only use projection equipment for viewing films when absolutely necessary, in order to avoid accidental damage;
 - do not mark CDs if at all possible; use their published identity numbers instead;
 - accession all items as originals, and ensure that all copies are linked back to them;
 - films and videos will be used more if a brief synopsis of content is made of each item when cataloguing;
 - seek to identify the version of the film held. Promotional videos, whether sponsored by a company or a tourist authority, were constantly updated to reflect new products or facilities, or edited to delete references to things deemed obsolete. Similarly, feature films are produced in versions, the theatrical release, the television version, the home video version, the wide-screen home video version, the director's cut, etc.
 - the title on the copy of a film or video held may not be the same as the original title.

Associated material

- 3.16 Some acquisitions will include, associated with the photographic items, original documents such as:
- contract documents;
 - photographer's log or notebook;
 - field notebooks;
 - cinematographer's and editor's logbooks, original scripts, dialogue lists, set designs, etc.;
 - sale documents;
 - conservation records;
 - exhibition catalogues and publications;
 - photographers' advertisements.
- 3.17 These primary records are distinct from the museum's own documentation, and should be accessioned into the museum collections as museum objects. Where appropriate, these should be duplicated and the copies made available to researchers, thus reducing the risk of damage through handling. The originals can then be stored in a different building for safety and security reasons. They need the highest standard of preservation, for they are of equal importance to the photographic items themselves in the museum's photographic collection.
- 3.18 Every effort should be made to record the context of amateur film or video, though the level of information available or accessible is likely to be much less than is the case for fieldwork documentaries or commercial work.

If the recording of all photographic items is undertaken with the use of computer systems, museums should plan for the provision of hardware and software to accomplish this and to maintain the records in the future.

Sources of advice and help

- Standards for the documentation of museum collections are laid down in:

Museum Documentation Association (MDA). 1994. *SPECTRUM: The UK Museum Documentation Standard*. Cambridge: MDA.

- These standards are conveniently summarised in:

Grant, Alice. 1994. *SPECTRUM Essentials*. Cambridge: Museum Documentation Association.

- These standards provide a framework for the documentation systems described in:

Holm, Stuart A. 1991. *Facts & Artefacts: How to Document a Museum Collection*. Cambridge: MDA.

Holm, Stuart A. 1993. *Cataloguing Made Easy: How to Use the MDA Simple Cataloguing Card*. Cambridge: MDA.

- In addition, the Museum Documentation Association and the Committee of National Photographic Collections will be working together to develop guidelines for documenting photographic collections and their conservation.

- Thesauri currently in use for documenting photographic collections include:

Social History and Industrial Collections Working Party. 1993 (2nd edn). *Social History and Industrial Classification*. Cambridge: Museum Documentation Association.

Getty Art History Information Program. 1994 (2nd edition). *Art & Architecture Thesaurus*. 5 vols. Oxford: Oxford University Press.

Library of Congress Subject Headings are available online and a microfiche version is published twice a year by the US Library of Congress.

The Library of Congress Thesaurus for Graphic Materials is available on the World Wide Web at URL: <http://palimpsest.stanford.edu/lex/lctgm/lctgm.html>

- Advice on museum documentation in general can be obtained in the first instance from the Area Museum Councils or direct from:

Museum Documentation Association
Lincoln House
347 Cherry Hinton Road
Cambridge CB1 4DH
Tel: 01223 242848
Fax: 01223 213575

Scottish Museums Documentation Unit
National Museums of Scotland
Chambers Street
Edinburgh E1 1JF
Tel: 0131 225 7534
Fax: 0131 220 4819

- Advice on the particular problems of documenting photographic collections can be obtained from the Committee of National Photographic Collections (see Appendix E).

- Advice on documenting film and video is contained in:

Grenfell, David. 1960 (5th revised edition). *Rules for Use in the Cataloguing Department of the National Film Archive*. London: British Film Institute.

Harrison, Harriet W., ed. 1991. *The FIAF Cataloguing Rules for Film Archives*. Munich: K.G. Saur.

- A good example of a film catalogue is:

Smither, Roger, ed. 1994. *The Imperial War Museum Film Catalogue - Vol 1: The First World War Archive*. Trowbridge: Flick Books.

Copies of the *Standard Facilities Report* to describe exhibition facilities is available from:

Sarah McCormick
UK Registrars Group
National Maritime Museum
London SE10 9NF

- Valuable guidance is contained in:

Royal Commission on Historical Manuscripts (RCHM). 1990. *A Standard for Record Repositories*. London: RCHM.

- Advice can be obtained from:

Royal Commission on Historical Manuscripts
Quality House
Quality Court
Chancery Lane
London WC2A 1HP
Tel: 0171 242 1198
Fax: 0171 831 3550

Society of Archivists
Information House
20 - 24 Old Street
London EC1V 9AP
Tel: 0171 253 5087
Fax: 0171 253 3942

National Preservation Office
The British Library
Great Russell Street
London WC1B 3DG
Tel: 0171 323 7612
Fax: 0171 412 7796

Head of Conservation
National Library of Scotland
George IV Bridge
Edinburgh EH1 1EW
Tel: 0131 226 4351
Fax: 0131 220 6662

Fédération Internationale des Archives du Film (FIAF)
Secretariat
rue Franz Merjay 190
1180 Brussels
Belgium
Tel: 00 32 2 343 0691
Fax: 00 32 2 343 7622

Access to collections within the museum

- 4.1** The museum should have a policy on access that defines the standards it seeks to reach, in relation to its purpose, to the status of its collections, to the needs of its users and its own resources.
- 4.2** It should be the aim of the museum to allow as much access as possible to the collections and their associated information.
- 4.3** Museums with collections of significance for researchers should adopt access standards that include:
- publishing a description of the collections;
 - a response time for confirming the presence or absence of particular types of object (suggested maximum 15 working days);
 - a period within which an appointment to study the object or objects can be offered (suggested maximum 30 working days);
 - provision of suitable facilities for use by the researcher.
- 4.4** The museum has a duty to safeguard the collections and documentation that may conflict with ease of access. The access policy should properly balance the requirements of access with conservation and security (see Part 2).
- 4.5** As far as possible, all museums should observe the standards and guidelines for ‘customer care’ set out in the Museums & Galleries Commission’s booklet *Quality of Service in Museums and Galleries*.
- 4.6** As far as possible, all museums should observe the *Guidelines on Disability for Museums and Galleries in the United Kingdom* published by the Museums & Galleries Commission and endorsed by the Museums Association.

Guidelines and notes

- 4.7** The definition of a museum emphasises the fundamental presumption that it holds its collections for the public benefit. Thus there should be a presumption against storing objects without the active development of policies and facilities to promote access to them - even though such access may lie in the future.
- 4.8** All forms of access should be considered - intellectual as well as physical. While limited resources may require that the museum set priorities, and conservation requirements may limit some forms of access, the aim should be to provide fair and equal access for everyone.
- 4.9** In developing a policy for access to its photographic collections, a museum needs to distinguish between access to photographic items of interest and appeal as artefacts, and access to photographic images. These may of course be the same items, but in the former case the visitor or researcher will need to see, and perhaps even to handle, the physical photographic print or negative itself, while in the latter case seeing a copy photograph, microform or digitised image will very probably be sufficient. Film and videos should always be copied, since every playback endangers the original.
- 4.10** Museums may make their holdings of photographic collections known through the National Register of Archives and the Directory of British Archives.
- 4.11** Museums should ensure that their policy on access is consistent with their policy on marketing; conflicts can otherwise easily arise.

Controls/Rules on access

- 4.12 Visiting researchers should normally submit a formal FIAF (Fédération Internationale des Archives du Film) request for access to collections and collections documentation (see 7.3.6). They should also sign a written agreement, especially if they are likely to make commercial use of their work, which should cover:
- conditions for access (confirmation of identity, handling restrictions, study facilities, supervision of work, arrangements for scientific analysis, etc.);
 - arrangements for the museum to obtain copies of any resulting publications, or summary of research notes if the work does not result in publication;
 - proposed use of the information;
 - the copyright aspects;
 - warning of any hazards (see Section 14).
- 4.13 Museums should consider the implications of public access to certain particularly sensitive types of photographic item. Some medical, racist, obscene or otherwise disturbing photographic items may need to be restricted, as may aerial photographs whose availability might encourage the looting of archaeological sites.
- 4.14 Museums which feel the need to restrict access should take legal advice and draw up and follow a consistent policy.
- 4.15 If a photographic item has never been 'published' before, which may often be the case in a museum collection, the publisher can in some circumstances automatically acquire the copyright in it. When photographic items, or copies thereof, are lent to publishers or to exhibitions, therefore, there must be a formal agreement which makes the relinquishment of this 'publication right' by the publisher a condition of supply.

Sources of advice and help

- The British Association of Picture Libraries and Agencies (BAPLA) is a major source of advice and help in the field of commercial dealing in the reproduction of images, and museums are welcome as members. BAPLA publishes *BAPLA Directory* (annually with supplements) and *BAPLA Journal* (bi-annual).

BAPLA

18 Vine Hill
London EC1R 5DX
Tel: 0171 713 1780
Fax: 0171 713 1211

- NAPLIB (formerly the National Association of Aerial Photographic Libraries) can advise on aerial photograph collections, and publishes:

NAPLIB. 1993. *NAPLIB Directory of Aerial Photographic Collections in the United Kingdom*. London: ASLIB.

NAPLIB (David Wilson: compiler). 1996. *The Care and Preservation of Photographs*. Swindon: NAPLIB.

NAPLIB

c/o RCHME
National Monuments Record Centre
Kemble Drive
Swindon SN2 2GZ

- The International Federation of Film Archives (FIAF) can give advice on film archives, and also publishes the following:
Beauclair, René, ed. 1994. *International Directory of Film and TV Documentation Collections*. London: Fédération Internationale des Archives du Film.

Fédération Internationale des Archives du Film (FIAF)
Secretariat
rue Franz Merjay 190
1180 Brussels
Belgium
Tel: 00 32 2 343 0691
Fax: 00 32 2 343 7622

- Other useful guides include:

Ballantyne, J., ed. 1993 (4th revised edition). *Researcher's Guide to British Film & Television Collections*. London: British Universities Film & Video Council.

Kirchner, Daniela, ed. 1995. *Film & Television Collections in Europe: the MAP-TV Guide*. London: Blueprint.

- Museums wishing to develop the commercial operations of their collections might usefully contact:

Federation of Commercial Audio-Visual Libraries (FOCAL)
PO Box 422
Harrow
Middlesex HA1 3YN
Tel/Fax: 0191 423 5853

- The following publications will be useful:

Museums & Galleries Commission (MGC). 1993. *Quality of Service in Museums and Galleries: Customer Care in Museums, Guidelines on Implementation*. London: MGC.

Museums Association (MA). 1995. *Codes of Ethics*. London: Museums Association.

Museums & Galleries Commission (MGC). 1992. *Guidelines on Disability for Museums and Galleries in the United Kingdom*. London: MGC.

Museums & Galleries Commission (MGC). 1993. *Disability Resource Directory for Museums*. London: MGC.

Palfreyman, T. 1993. *Designing for Accessibility*. London: Centre for Accessible Environments.

Borrowing and lending

- 5.1** Every museum should have a written policy and procedure for lending, and standard conditions that borrowers must accept in writing before the loan is made.

Guidelines and notes

Loan of originals

- 5.2** Museums may be asked to lend original photographic items for both exhibition and study; where possible museums will wish to comply. However, original film and video items (archive masters) should never be lent.
- 5.3** Photographic items from the accessioned collections should be subject to the same loan conditions as other objects. Standard loan conditions for items from the permanent collections should normally include:
- copyright conditions;
 - object condition reporting;
 - insurance arrangements;
 - length of loan, and arrangements for renewal or cessation;
 - conditions of security, handling, presentation, and environmental monitoring and control (see Part 2);
 - exchange of environmental information between lender and borrower;
 - borrower's disaster response arrangements;
 - no conservation work to be carried out;
 - no analytical work to be carried out;
 - agreement on where and how the photograph is to be kept and displayed;
 - equipment on which film, etc., is to be shown;
 - packing;
 - transport arrangements;
 - reproduction, exhibition and commercial use;
 - arbitration and successors;
 - acknowledgement of the loaning institution;
 - regular inspection by curator and conservator;
 - arrangements for return.
- 5.4** All such conditions should be discussed, fully understood, and agreed in writing before substantive arrangements for the loan are put in place.
- 5.5** The same care and arrangements are essential when the museum sends photographic items outside, for example, for exhibitions or for copying.
- 5.6** Care should be taken to draft the loan agreement so that the borrower cannot acquire the images without the formal approval of the museum and/or copyright holder.
- 5.7** In order to allow the lender to monitor the condition of material while on loan, it is reasonable to expect the borrower to:
- pay for travel and subsistence on an agreed number of monitoring visits during the loan period;
 - provide appropriate access to the photograph;
 - make available during the loan period information on environmental conditions.
- 5.8** It is important to ensure that images or associated sound tracks stored on magnetic media (audio or video tape, smart card derivatives, etc.) are not exposed to stray magnetic fields. Common sources of such fields are electric motors such as those used on underground trains and conveyor belts. Security screening equipment (X-ray machines, electronic metal

detectors) used at airports and ports are not considered a risk to unexposed photographic film or magnetic media. However, consideration should be given to exposure to cosmic radiation during a flight. This is several times the amount of radiation any item would be exposed to by the X-ray screening process. The Registrars of the National Museums & Galleries can provide a standard covering letter to the security authorities.

- 5.9 A permanent record of every loan should be kept, for example, by keeping the exit record and loan agreement in the item's object file.

Supply of copies for research, teaching and private study

- 5.10 Museums have a responsibility to make the images in their custody available for private study, research and teaching. The sale of copies of photographs can help serve in the dissemination of collections and can also generate income for the museum. Museums should consider the potential conflict of interest this involves, set out a policy and regularly review it. The supply of copies of any material is subject to appropriate copyright legislation (see Section 1 and 4.15).
- 5.11 The museum should ensure that anyone supplied with a copy of an image signs an agreement not to reproduce the image without permission.

Loan of copies for reproduction use

- 5.12 Museums also have a responsibility to disseminate their collections; scholarly and educational publication - including broadcast and electronic publication - can facilitate this mission, in addition to generating income for the museum. Material can *only* be supplied for reproduction, however, if the museum owns the copyright therein, or holds a license to exploit the collection on behalf of the copyright holder. Even if the material is out of copyright, the institution is still entitled to make a charge for its services. If the material has never been 'published' before, a formal agreement which makes the relinquishment of the 'publication right' by the publisher a condition of supply (see 4.15).
- 5.13 If a copy of a photograph is supplied for reproduction use, scholarly or otherwise, it should be *lent* rather than sold to the user, so that the museum can maintain some control over its use. Suitable documentation should also accompany the photograph(s), as well as a delivery note which should be signed and returned by the user. This delivery note should be worded so that it will serve both as a receipt, and as acceptance of the terms and conditions of supply. A charge may be made at this stage for search and service fees. The museum should always establish the intended use of the material before supplying it, so that misuse can be avoided. Once the user has selected the images to be reproduced, an appropriate reproduction licence fee can be negotiated according to the intended use. After use material must always be returned to the museum.
- 5.14 Operating this kind of picture library service is a complex and time-consuming process requiring specialist knowledge and skills. Advice on administering this function can be obtained from the British Association of Picture Libraries and Agencies (BAPLA) who number many museums among their members.

Electronic publishing

- 5.15 A new era is opening for public access to photographic collections. A variety of systems are developing for making available the photographic images of a museum or a group of museums on video disc, CD-ROM, photo-CD or on-line.
- 5.16 Such developments allow museums to meet their responsibilities to make images available to the communities to which they refer. Thus the Basel Mission Archive in Switzerland is making their 28,400 images from 1840s to 1945 available in the countries where the mission was active. The Pitt Rivers Museum has used video tape in 'repatriation' projects in Papua New Guinea and Fiji.

- 5.17 Museums should, however, approach with caution the commercial aspects of electronic publishing, and should take advice. Some publishers have been known to try to tie up all media/all rights/in perpetuity deals whilst claiming that the novelty of the new markets prevents them offering the going rate. New problems will arise with the possibility of deterioration-free onward reproduction of images released on digital format.
- 5.18 Museums should ensure that they have a clear agreement along the lines of the above for all items that they have on loan or have themselves loaned. It is particularly important to have a clear record of ownership, and, for photographic items, copyright and reproduction.
- 5.19 There should be included in any agreement for long-term or indefinite loan a clause requiring a formal review at a specified interval. On such occasions the museum and the owner can decide whether or not they wish the agreement to continue. Intervals of five years between such reviews is suggested.

Sources of advice and help

● Members of the Committee of National Photographic Collections will be glad to advise on any aspect of the loan or care of photographic items (see Appendix E).

● Advice on making photographs available for reproduction purposes can be obtained from BAPLA and FOCAL (see Section 4).

● Copies of the *Standard Facilities Report* to describe exhibition facilities is available from:

Sarah McCormick
UK Registrars Group
National Maritime Museum
London SE10 9NF

● The following publications are essential reading on the loan of original objects:

Association of Independent Museums (AIM). 1988. 'Museum Collecting Policies and Loan Agreements'. *AIM Guideline 14*. AIM.

Sixsmith, M., ed. 1995. *Touring Exhibitions: The Touring Exhibitions Group's Manual of Good Practice*. Oxford: Butterworth-Heinemann.

● Helpful advice on lending and borrowing, not only for exhibition, will be found in:

Askham, David. 1990. *Photo Libraries and Agencies*. London: BFP Books.

Evans, Hilary and Mary, eds. 1992. *The Picture Researcher's Handbook*. London: Chapman & Hall (Blueprint).

Evans, Hilary. 1992. *Practical Picture Research*. London: Chapman & Hall (Blueprint).

Museums & Galleries Commission (MGC). 1995. *Standards for Touring Exhibitions*. London: MGC.

National Association of Aerial Photographic Libraries (NAPLIB). 1993. *NAPLIB Directory of Aerial Photographic Collections in the United Kingdom*. London: ASLIB.

● A suggested form for license for image reproduction in electronic media has been drafted by solicitors for Science and Society Picture Library, a division of the Science Museum's trading company NMSI Trading Ltd. It may be used free of charge by any museum or gallery. Further information, including the full text of the license, is given in an article titled 'Image Reproduction in Electronic Media' published in the April 1995 issue of *Museum Shop & Publishing News*.

● The British Universities Film & Video Council can give advice on the electronic publishing, including its commercial aspects:

The British Universities Film & Video Council
55 Greek Street
London W1V 5LR
Tel: 0171 734 3687/8

● An excellent brief introduction to constructing an image database is:

Besser, Howard and Jennifer Trant. 1995. *Introduction to Imaging*. Santa Monica: The Getty Art History Information Program.

Museum research

- 6.1** **The Forward Plan of every museum should include reference to the museum's duty to undertake and to foster research. The governing body should ensure that time and resources are provided to enable research to be done.**

Guidelines and notes

- 6.2 Research is fundamental to the function and purpose of a museum, though its form will vary greatly between museums of different sizes and types. Such research includes research into an object, wider historical or scientific research, and research into the history of the museum collection.
- 6.3 Every museum should have a research policy, preferably written as part of the museum's Forward Plan or Collections Management Policy. It should be realistic, and relevant to the museum's collections, its staff and resources, and its public role.
- 6.4 The museum's research policy should include details of its access policy for researchers, taking into account both its general access policy (see Section 4) and the needs of security (see Section 7).
- 6.5 The museum's research policy should take into account the special problems posed and opportunities offered by the photographic items in its collections.
- 6.6 The research policy should be drawn up in consultation with neighbouring and related museums and collections, and with appropriate local and national (and international, where appropriate) academic societies, and specialist groups or individuals interested in the field.
- 6.7 Research without publication or proper documentation is useless. The museum should ensure that its own staff, and as far as it can, other researchers using its collections, work to the highest academic standards, with proper citation of sources, including reference to objects' Accession Numbers.
- 6.8 For the conditions under which museums should make their photographic collections available for loan, copying and publication (see Section 5).

Sources of advice and help

- Help can be given by members of the National Committee of Photographic Collections (see Appendix 1).

Part Two: Protecting Collections

7

Protecting photographic collections from theft

7.1 Physical protection

- 7.1.1** The structure of the building should be designed and/or defended to a degree that will deter an attack by a thief or vandal.
- 7.1.2** Windows, doors, ventilation shafts and ducts should be designed, constructed and secured so that an intruder is deterred from trying to enter, or is delayed long enough to allow an alarm to trigger a response before the intruder can enter, steal and escape.

Guidelines and notes

- 7.1.3** Further advice on these standards and guidelines can be obtained from the Museums & Galleries Commission's Museums Security Adviser. The difficulties in achieving the above standards of physical protection in some historic buildings are well understood. Indeed, it may sometimes only be possible to counterbalance physical weaknesses by the use of supervisory regimes involving people or equipment.
- 7.1.4** The structure of any building in use should be such that penetration through the walls and roof is difficult and time-consuming. Even relatively weak buildings, for example, those of wooden construction, can be improved to meet this requirement.
- 7.1.5** The number of windows should be reduced to the essential minimum (though necessary ventilation must be maintained). Windows no longer required should be filled in to a strength similar to the surrounding structure. Windows in use, and those in historic buildings, should be protected by a means agreed with the Museums & Galleries Commission's Museums Security Adviser.
- 7.1.6** The number of doors to the outside should be reduced to the minimum, leaving only those required for entry or as emergency exits. Unused doors or windows should be filled in or blocked by other methods agreed with the Museums Security Adviser. Remaining wooden doors should be of at least 50mm thick solid construction and fitted with security-standard mortice deadlocks. Emergency exit doors should be fitted with modern quick release door furniture which must be capable of being deadlocked when the building is unoccupied. Exterior doors should wherever possible have no external furniture.
- 7.1.7** Pitched roofs of slate or tile should be fitted over close-boarded timber. Measures to modify roofs constructed of other materials should be agreed with the Museums Security Adviser. Unauthorised access to the roof should be limited by physical barriers, such as fencing, anti-climb paint or anti-vandal barriers.
- 7.1.8** The risk to photographic items on display will vary enormously. Factors which should be considered are the value - or simply attractiveness - of the photograph, its location in the building and the location of the building. All photographic items on open display are at risk. These risks need to be assessed and countered by the mode of display. Wherever possible, copies should be used for display purposes, rather than originals.
- 7.5**
- 7.1.9** Modification of historic buildings may require Listed Building or other consents.
- 7.1.10** Where the museum shares a building with another user it is important to ensure that strict security arrangements are agreed and adhered to by all parties. In shared buildings the internal perimeter of the museum premises should be treated and strengthened in the same way as the external perimeter.

7.2 Perimeter alarms

- 7.2.1** All openings in the building fabric, such as doors, windows, roof-lights, and ventilation shafts (including those giving internally into adjacent accommodation outside the museum area), should fall within the protected zone of an intruder detector.

- 7.2.2** An intruder detection system that qualifies for a National Approved Council for Security Systems (NACOSS) certificate, and is to *BS 4737: Intruder Alarm Systems in Buildings* specification, should be fitted by a company recognised and approved by NACOSS for such installations. Installations should also satisfy conditions laid down by the Association of Chief Police Officers (ACPO).

Guidelines and notes

- 7.2.3 The system should be as simple as possible to avoid an unacceptable false alarm rate; and should depend upon suitable sensors fitted to doors and other openings. Separate movement and body heat detectors are prone to false alarms, but newer devices that combine both techniques are more reliable.
- 7.2.4 The signalling of an alarm condition should be by means of a monitored line or radio link to an alarm company's central station. This will give an alarm if the line is cut.

7.3 Invigilation

- 7.3.1** The level of invigilation must be appropriate to the risk.
- 7.3.2** The bona fides of all researchers and others with access to photographic collections should be checked and recorded, and they should be adequately supervised at all times.
- 7.3.3** Nobody should be allowed into museum stores unless accompanied by an authorised person (normally a member of staff) at all times.

Guidelines and notes

- 7.3.4 The risk to items on display should be assessed and an appropriate level of invigilation should be provided. This level should never be reduced. If sufficient invigilators are not available the gallery or even the whole museum should be closed. Special care should be taken at unusual times, for example, while an exhibition is being installed or during evening events.
- 7.3.5 Prints and films most at risk should be copied, and negatives duplicated, whenever this can be done without danger of damage.
- 7.3.6 Researchers have, unfortunately, been responsible for serious and frequent thefts from museums. Everyone using the collections should be made aware that access is subject to guidelines; even the most senior researchers should be obliged to follow them. Researchers should be required to complete a form which should request details of:
- researcher's name, affiliation, address and telephone number;
 - proof of identity presented;
 - name, address and telephone number of referee;
 - date and duration of visit;
 - purpose of visit;
 - items/documentation requested.
- 7.3.7 Pornographic and other controversial material may be at risk from museum staff. Appropriate arrangements to restrict staff access should be made (see 4.13).
- 7.3.8 The Museums Association's 'Guidelines on Security When Using Outside Contractors' should be observed.
- 7.3.9 The use of small security alarms within showcases may help to reinforce invigilation.
- 7.3.10 Copies should ideally be made of all the photographic items in the accessioned collection. However this is probably only practical for significant items or those heavily used by researchers, etc.

7.4 Key security

- 7.4.1** A strict policy regarding the possession of keys should be devised and enforced.

Guidelines and notes

- 7.4.2 There should never be more keys than is strictly necessary, and the number of people in possession of keys should be kept to the barest minimum. All keys, other than the external door-keys held by key-holders, and keys to safes, should remain within the building in a secure key cabinet or safe, and should be identified by a coding system. An issue system against signature should be used as a security measure.

7.5 Electronic crime

- 7.5.1** Appropriate precautions must be taken to protect electronic images.

Guidelines and notes

- 7.5.2 Magnetically-stored electronic images (eg. video-tape, video discs, computer discs, and magnetic soundtrack) are at risk from deliberate or accidental damage from magnets; unique or master copies should never be exposed to such dangers, but should be kept securely and copies made available.
- 7.5.3 Where images are on-line, they are at risk from malicious hackers and from piracy.
- 7.5.4 Images on CD-ROM-on-line catalogues, etc., are at risk from piracy. The former can be encrypted to protect them, and can also be of such low resolution that they are not worth copying.

Sources of advice and help

- The following publications are useful:

A free leaflet published by the Museums & Galleries Commission (MGC). 1989. *Museum and Gallery Security*. London: MGC.

Hoare, Nell. 1990. *Security for Museums*. London: Committee of Area Museum Councils (CAMC).

Burke, R. and S. Adloye. 1991. *Basic Museum Security*. Paris: International Council of Museums.

Kluwer Handbooks. (updated periodically). *Handbook of Security*. Kingston-upon-Thames: Croner Publications Ltd.

Dovey, Bryan. 1992. 'Security'. In *Manual of Curatorship*, eds. J. M. A. Thompson *et al*, 183-190. Oxford: Butterworth-Heinemann/Museums Association.

Museums Association (MA). (annual publication). 'Guidelines on Security When Using Outside Contractors'. *Museums Yearbook*. London: MA.

- Advice is readily available from the Museums & Galleries Commission's Museums Security Adviser (Tel: 0171 233 4200) and from the Area Museum Councils.

Protecting photographic collections from fire

- 8.1** Museum buildings should be designed or adapted to minimise the risk of fire and to prevent its spread.
- 8.2** Museum buildings must meet the legal requirements for fire prevention and means of escape. This will normally be the Building Regulations 1991 Approved Doc B Fire Safety.
- 8.3** All contracts for work on the premises should be on a 'Permit to Work' basis, and no work involving heat sources such as blow-torches or arc welding machines should normally be permitted. If such heat sources have to be used it should be to the safety regulations contained in Section 31 (4) of the Factories Act 1969.
- 8.4** Wherever possible, buildings housing museum objects should be covered by an automatic fire-detection and alarm system, installed and maintained in accordance with *BS 5839: Fire Detection and Alarm Systems for Buildings Part 1 Code of Practice for System Design, Installation and Servicing*.
- 8.5** The premises should be equipped with fire-fighting equipment as recommended by the Fire Officer and complying with *BS 5423: Portable Fire Extinguishers* and *BS 5306: Fire Extinguishing Installations and Equipment on Premises*.
- 8.6** Fire-resistant cabinets should be provided to house the primary records and museum documentation, and wherever possible copies of records and back-up computer discs should be kept in a different building.
- 8.7** All staff and volunteers should regularly attend training in fire prevention and response.

Guidelines and notes

Legal requirements

- 8.8** Depending on the use of a building and the number of people working in it, a fire certificate as required by the Fire Precautions Act 1971 may be needed.
- 8.9** If chemicals are kept within the building, the conditions must be in accordance with the advice of the local authority's Fire Officer and must comply with Control of Substances Hazardous to Health (COSHH) Regulations. A suitable COSHH assessment must be made and a copy kept in a convenient place for passing to emergency services on their arrival at an incident.
- 8.10** Revised proposals for Fire Precautions (Places of Work Act) Regulations and Associated Guidance are likely to be produced in 1996.

Reducing risk through design

- 8.11** Areas housing collections should be rigorously insulated to a high standard (not less than half an hour protection, but preferably one hour) against fire spread from areas of risk, eg. workshops, laboratories, kitchens, boilers, plant room or chemical stores. The degree of risk from 'risk areas' must be reduced as much as possible, for example, by using an external chemical store if necessary.
- 8.12** The advice of the Building Control Officer and Fire Authority should be sought on the selection of all materials used in displays and storage areas. Normally, all such materials should be fire-retardant, class O or A.
- 8.13** Independently of their statutory responsibilities these officers should be invited to inspect the premises at least once a year, and should be made aware of the particular requirements

of museums. Their recommendations should be reported to the museum's Board of Management. A formal application for Building Regulation Approval is normally required for any structural work.

8.14 Modification of historic buildings may require Listed Building or other consents.

8.15 Fireproof cabinets are designed to protect their contents from damage by fire for a minimum period (normally one hour) at high temperature. A feature of their construction is that there are normally no ventilation holes and so in some circumstances there is a risk of damage through mould growth. Such specially constructed cabinets are large, heavy and expensive. It is unlikely that a museum would have the resources to house large collections, though it would be practical to store accession registers, legal documents and backup copies of computer discs in them.

Electricity and gas

8.16 In museum buildings, all electrical wiring and equipment (including portable equipment) must be installed in accordance with the appropriate British Standard *BS7671, the Institution of Electrical Engineers' Regulations* and the *Electricity at Work Regulations*. Electrical installations should be regularly maintained and checked by a competent person as required by those regulations.

8.17 Gas, oil and mechanical equipment must also be installed in accordance with appropriate British Standard and statutory instructions, and must be regularly checked and maintained. A Register of each piece of equipment should be established, which should contain maintenance records and inspection certificates. A detailed plan of all installations should be kept in a convenient place for passing to the emergency services on their arrival at an incident (see Section 10).

Fire detection devices

8.18 A survey is needed to decide the type, number and location of fire-detection sensors appropriate to the premises. Indeed, a wider ranging survey can be undertaken to identify specific risks and any necessary precautions, to provide a fire precautions manual containing checklists and disaster response plans (see Section 10), and to set out a reporting procedure. Specialist companies and many major security firms can give such advice.

8.19 Standards for fire detection and suppression systems include:

National Fire Prevention Association NFPA Code 910 *Protection of Libraries and Library Collections* 1991;

NFPA Code 911 *Protection of Museums and Museum Collections* 1991;

NFPA Code 914 *Recommended Practice for Protection of Historic Structures* 1994;

These three publications will be combined in a single standard to be published in 1996 as NFPA Code 915 *Standard for Protection of Cultural Resources*.

Fire precautions

8.20 Sprinkler systems are a highly effective method of controlling outbreaks of fire. Systems should be designed to ensure that they operate only in the locality of the heat source and will close off the water supply once the heat source has been neutralised. It is important to ensure that the water delivered by sprinkler systems is clean. Fire suppressant systems using low water content foams are also available.

Dangers from photographic collections

8.21 Photographic items may themselves constitute a fire hazard. In particular, cellulose nitrate film, produced between 1889 and 1950, is a serious fire hazard and must normally be isolated in an environmentally controlled external chemical store. Its presence inside the museum is likely to invalidate the premises' insurance. Museums wishing to hold nitrate film should have access to professionals experienced in their care and be prepared to provide specialist equipment and facilities.

- 8.22 Permission to store nitrate film (movie or still) should be sought from the local authority. The local Fire Authority will wish to inspect the premises. Normally it is not worthwhile for a non-specialist museum to keep nitrate film. It would be better for the curators to satisfy themselves that they are not holding nitrate stock and that any they do is copied and then disposed of, or transferred to be cared for by an organisation which has suitable facilities. In Northern Ireland the keeping of nitrate film contravenes the Prevention of Terrorism Act.
- 8.23 The regulations concerning the carrying by road of hazardous chemicals are extremely complex; if a large quantity of nitrate film is to be transported it is advisable to have it done by a specialist carrier.
- 8.24 The fumes given off by burning cellulose nitrate film are extremely toxic.
- 8.25 Apart from nitrate film, fire dangers to be found in photographic collections include:
- magnesium ribbon in flash-guns;
 - plastic film and video cases and sleeves.

A preventive regime

- 8.26 All staff and volunteers should receive regular training to ensure competence in preventing and responding to fires, and this training should be at least consistent with Part 1 (18) of the Fire Precautions Act 1971. All staff and volunteers should be familiar with the museum's Disaster Plan.
- 8.27 Smoking should be forbidden in all parts of the premises that contain collections or records.
- 8.28 Public events - for example, concerts or exhibition openings - pose a particular fire hazard. Careful thought should be given to fire prevention when planning events. Emergency procedures should be planned and practised.
- 8.29 Fire-resistant cabinets should comply with BS 476 which states that the contents will be protected for at least one hour at a temperature of up to 926.5 C. Cabinets to this specification are expensive and heavy.

Sources of advice and help

- Museums holding cellulose nitrate film but wishing to transfer it to the care of an organisation with the appropriate facilities should contact their local Area Museum Council or one of the archives listed in Section 1.

- The Local Authority Fire Prevention Officer and the Local Authority Building Control Department will both be glad to give advice.

- Three useful sources of advice, published annually, in respect of UK fire authorities and fire protection equipment, are:

- *Security and Fire Prevention Yearbook*, available from:

Paramount Publishing
17-21 Shenley Road
Borehamwood
Herts WD6 1RT

- *Fire Protection Yearbook*, available from:

Fire Protection Association
Melrose Avenue
Borehamwood
Herts WD6 2BJ

This is supplied free to Fire Protection Association members.

Fire Directory, available from:

FMJ Publications
Queensway House
Redhill
Surrey RH1 1OS

- Other useful information such as safety data sheets can be obtained from:

Fire Protection Association
Loss Prevention Council
Melrose Avenue
Borehamwood
Herts WD6 2BJ
Tel: 0181 207 2345
Fax: 0181 236 9701

- Many museums are in historic buildings, whose adaptation to meet fire prevention and security requirements often causes problems. *Heritage Under Fire*, 1995, published by the Fire Protection Association is a useful source of advice. Area Museum Councils can also give advice - directly or through consultants - on possible solutions.

- Useful information on the interpretation of the Fire Precautions Act 1971 can be found in:

Her Majesty's Stationery Office (HMSO). 1989. *Code of Practice for Fire Precautions in Factories, Offices, Shops and Railway Premises Not Required to Have a Fire Certificate*. London: HMSO.

Her Majesty's Stationery Office (HMSO). 1971. *Fire Precautions Act 1971: Guide to Fire Precautions in Existing Places of Work That Require a Fire Certificate*. London: HMSO.

- A free information paper is available from the Registrar of the National Museum of Photography, Film & Television:

Provisions for the Licensing, Projection and Disposal of Nitrate Film.

- A helpful description of a project to copy and secure cellulose nitrate negatives is contained in:

East Midlands Museums Service (EMMS). 1994. *Preservation of Photographic Negatives at the National Tramway Museum*. EMMS Good Practice Notes. Crich, Derbyshire: EMMS.

Protecting photographic collections from flood

- 9.1** As far as possible no pipework or tanks should be permitted in new buildings in or above areas where collections are kept; every effort should be made to exclude pipework from such areas in old buildings. Adequate drainage should be provided in buildings where there is a possibility of flooding.
- 9.2** No object should be placed lower than 150mm above the floor.
- 9.3** Appropriate precautions should be taken in museums liable to flooding.

Guidelines and notes

- 9.4** Photographic collections are extremely vulnerable to water damage. 'If a flood can occur, one day it will'; this assumption should guide all arrangements in the museum.
- 9.5** Compliance with relevant building regulations and recommendations, especially in old buildings, may make complete exclusion of pipework difficult. Every effort should be made, in discussion with the appropriate technical consultant, to find a satisfactory compromise solution. In areas where objects can be raised off the floor, one solution may be to run the pipework at ground level rather than ceiling level. Automatic cut-off valves should be installed, and leak detectors are desirable.
- 9.6** Shelving housing photographic items may be protected with polythene sheeting to provide extra protection from water leaking from above. Waterproof boxes, cabinets, etc., should be used whenever possible. Appropriate ventilation should be provided to prevent condensation and the risk of mould growth.
- 9.7** Every effort should be made to check and reduce the danger of flooding from adjoining or neighbouring premises.
- 9.8** The Local Authority and Local Water Authority should be asked for advice on the likelihood of flood; long-resident neighbours should also be consulted. Bund walls, stop boards, sandbags and other precautions may be appropriate in some museums.
- 9.9** All pipework should be identified by colour according *BS 1710: 1984, Specifications for Identification of Pipelines and Services, and their Locations*, and their locations should be noted on the building plan in the museum's Disaster Response Plan (see Section 10). All pipes liable to freezing should be well lagged and should be inspected very frequently during frosts.
- 9.10** There should be drainage to cope with flooding; drains should have non-return traps.
- 9.11** All taps to sinks should be of the spring-loaded automatic turn-off type.
- 9.12** The danger of water damage as a result of fire should be considered in the disaster response plan (see Section 10), and should be regularly discussed with the Fire Brigade.
- 9.13** All staff and volunteers should receive regular training in flood prevention and response.
- 9.14** When new buildings are planned, the danger of flood posed by central heating must be weighed against the danger of fire posed by electrical heaters.

Sources of advice and help

- The Fire Brigade will provide advice on the prevention of flooding.

Planning response to disasters

- 10.1** The museum should draw up a Disaster Response Plan for the protection and rescue of the collections in the event of fire, flood or other catastrophe.
- 10.2** All museum staff and volunteers should receive regular training to ensure competence in how to respond to disasters.

Guidelines and notes

- 10.3** The Disaster Response Plan is a written document that sets out procedures to be followed in an emergency. Its general contents should be known to all staff through prior discussion and through regular training sessions and emergency exercises. Liaison with the public emergency services over its contents is essential. Once written, a Disaster Response Plan requires continued revision to ensure that it remains relevant.
- 10.4** The Plan should include:
- the responsibilities of personnel, and methods of raising the alarm and communication to others;
 - emergency telephone numbers, including home numbers of staff;
 - a confidential up-to-date plan of site and buildings clearly showing all services, hazardous stores, etc. A separate copy of this should be lodged with the fire brigade or available to them on their arrival;
 - priorities in limiting damage to the collection and to its documentation. Careful consideration must be given to which items should have priority for rescue;
 - sources of relevant expertise, including conservators and nearby museums, archives, etc., as agreed beforehand;
 - a list and locations of material and equipment (every museum should have a 'disasters box' containing mops, buckets, cloths, overalls, rubber and heat-resisting gloves, etc.);
 - a list of suppliers and services;
 - security measures for the collections if the premises are damaged (eg. pre-arranged off-site safe storage);
 - arrangements for documentation of objects taken off-site;
 - first-aid measures for damaged collections, by type of material, drawn up in consultation with conservators;
 - an agreed budget including petty cash and/or chequebook, with a hierarchy of authority to spend money in an emergency. The hierarchy should extend as far as possible in order that someone present at a disaster is authorised to spend money;
 - a safety policy for working in hazardous conditions;
 - security measures for the buildings, if damaged (eg. boarding-up contractors).
 - arrangements should be in place to ensure that staff have access to telephones as soon as they arrive on site.
- 10.5** A complete record of the collection and its disposition within the stores or displays should be available at some distance from the collection itself, and a duplicate should be held in another building.
- 10.6** Those items which have priority for rescue should be clearly marked.
- 10.7** It is essential that the disaster response plan be drawn up in close co-operation with the fire brigade, and be regularly reviewed with them.
- 10.8** Photographic items are particularly susceptible to damage by water, and they should receive priority in the event of flooding or other water damage. Following water damage, some photographic materials can be air-dried or frozen within 48 hours (collodion wet plate

negatives, Ambrotypes and Tintypes should never be frozen). The advice of a photographic conservator should be sought.

In emergency, wet and wet-soiled CDs can be treated by:

- spraying with distilled water to remove surplus dirt as soon as possible;
- blotting (not rubbing) very gently with lint-free cloth or acid-free blotting paper;
- drying with cool air blast. CDs can be vacuum-dried but not freeze-dried.

10.9 In every museum, the Disaster Response Plan should be only part of a wider policy for the protection and rescue of people (first) and of the collections.

10.10 Staff should regularly practice responding to disasters.

Sources of advice and help

- The following publications are useful:

Bachmann, Konstanze, ed. 1992. *Conservation Concerns: A Guide for Collectors and Curators*. Washington: Smithsonian Institution Press.

Barton, John P. and Johanna G. Weltheiser. 1985. *An Ounce of Prevention: A Handbook on Disaster Contingency Planning for Archives, Libraries and Record Centers*. Toronto: Toronto Area Archivists Group Education Foundation.

East Midlands Museums Service (EMMS). 1991. *The Museums and Records Office Emergency Manual*. Nottingham: EMMS.

A second edition of this publication is being produced by the Fire Protection Association:

Fire Protection Association
Melrose Avenue
Borehamwood
Herts WD6 2BJ

Anderson, Hazel and John McIntyre. 1985. *Planning Manual for Disaster Control in Scottish Libraries and Record Offices*. Edinburgh: National Library of Scotland.

Jenkins, I. A. 1987. *Disaster Planning and Preparedness: An Outline Disaster Control Plan*. London: British Library.

Hendriks, Klaus B. and Brian Lesser. 1983. 'Disaster Preparedness and Recovery: Photographic Materials'. In *American Archivist*. 46.

Hendriks, Klaus B., *et al.* 1991. *Fundamentals of Photograph Conservation: A Study Guide*. Toronto: Lugus Productions.

Fire Protection Association (FPA). 1995. *Heritage Under Fire*. London: FPA.

Kidd, S. 1992. 'Preparing for Disasters in Museums and Galleries'. Fire Prevention. 254. London: Fire Protection Association.

Society of Industrial Emergency Services Officers (SIESO). 1986. *Guide to Emergency Planning*. Borehamwood: Paramount Publishing.

- Advice can be obtained from the Area Museum Councils. In addition, The Conservation Unit of the Museums & Galleries Commission (Tel: 0171 233 3683, Fax: 0171 233 3686) maintains a Register of private conservators throughout England, Wales, Scotland and Northern Ireland and a list of suppliers of materials. In Scotland this information is held by Historic Scotland's Conservation Bureau (Tel: 0131 668 8668, Fax: 0131 668 8669).

In some areas emergency conservation units are available.

- The National Preservation Office video *If Disaster Strikes* is useful for training. Contact your Area Museum Council to hire or purchase this video and to organise disaster contingency planning seminars.

Storage and handling of photographic collections

- 11.1** Photographic items must be stored and handled in a manner which protects them from damage and does not expose them to chemical risks.

Guidelines and notes

Storage of photographs

- 11.2** Enclosure materials for photographs fall essentially into two groups: paper/boards and plastics.

- 11.3** **Paper and board** should conform to the following criteria:

- high-cellulose content (above 87%);
- pH 6.5 - 7.5;
- undetectable reducible sulphur content;
- free of lignin, pH buffers, metal particles, acid, peroxides, formaldehyde and harmful sizing agents.

The Photo Activity Test as described in American National Standard for Imaging Media (Photography), ANSI IT. 9.16 : 1993 has been developed to test materials for their suitability for use in the storage of silver image photographic materials.

Products developed to meet the specific requirements of photographic materials are available from conservation suppliers.

- 11.4** All photographic material can be safely stored in paper conforming to the above criteria, providing the enclosures are of a suitable design.

- 11.5** There is at present some doubt whether ordinary acid-free storage materials are suitable, particularly where they will be in direct contact with photographic materials. Care should be taken to ensure that acid-free materials not specifically designed for use with photographic materials fulfil the criteria listed above.

- 11.6** **Plastic enclosure materials** should conform to the following criteria:

- be free of plasticiser;
- surface not glazed, coated, or frosted.

- 11.7** The most widely accepted plastic material for use as enclosures for museum purposes is polyester. Most photographic materials can be safely stored in these enclosures so long as the environment is stable. The exceptions are prints and negatives with delicate surfaces (such as flaking emulsion, hand-colouring or annotations), glass-based material, Tintypes, cased photographs and early film base material. Some older film base material is likely to deteriorate more rapidly if stored in plastic enclosures. PVC sleeves should never be used.

- 11.8** **Storage cabinets** should preferably be made from metal with a baked enamel or powder coated finish. Anodised aluminium is also suitable. Polyethylene foam (such as Plastazote) can be used to line shelves or drawers in order to soften the hard surfaces. Finishes can be tested for their suitability for use with photographic materials using the ANSI Photo Activity Test. The 'Oddy' tests are also used for testing materials for their suitability for use in the display of objects. Though not designed specifically for photographic materials they provide useful guidance.

- 11.9** **Wooden boxes**, such as those that were made specifically to store lantern slides, are safe to use provided they are sound and in good condition. However, if the original box is missing or unsound, they should be stored as described in 11.15.

- 11.10 **Different types of material**, such as glass and film negatives, paper contact prints, and colour slides should be stored separately. The above observations on materials should be borne in mind for the following:
- 11.11 **Photographs on paper** base can be stored in paper enclosures or in polyester sleeves, with a photographic museum board support if necessary (note provisos above). They may be stored upright (only if in sleeves) or flat. If stored flat, their numbers should be limited so that those prints at the bottom of the pile are not damaged. In either case, care should be taken not to pack the photographs too tightly.
- 11.12 Some museums choose to hinge photographs within window mounts for access purposes. Even if the materials they are made of are acceptable, it is generally preferable not to attach anything to the original material unless required for display or access.
- 11.13 **Prints in albums** may be interleaved with a photographic conservation paper if they appear to be suffering damage from adjacent prints or album pages. This should only be done if the binding will not be stressed by the extra volume of paper. Modern albums of the type that have adhesive coated pages and plastic over sheets should not be used.
- 11.14 **Photographic albums** should be stored flat, preferably in boxes lined with acid-free tissue paper padding. Wrapping in washed, unbleached calico is a safe alternative for albums that do not have raised decorative surfaces that could be damaged. Albums should not be stacked one on top of another because any uneven weight distribution could damage the photographs within. Many albums have raised decoration and will damage adjacent material if stored on shelves, as well as suffering damage themselves.
- 11.15 **Glass negatives and lantern slides** should be kept in individual paper enclosures and stored vertically in suitably padded cabinets or strong boxes. A board separator should be inserted every fifth plate. Large format negatives (10" x 8" and above) are safer stored horizontally in boxes with board separators to act as a support. There should be no more than four plates per box.
- 11.16 **Film negatives** can be stored in paper or plastic sleeves (see earlier provisos). They can then be placed in boxes or in a hanging file system in a cabinet.
- 11.17 **Cased photographs**, such as Daguerreotypes and Ambrotypes, should be kept horizontally in their cases and these stored in cabinet drawers and/or boxes. Partitions in the drawer will reduce the risk of physical damage during opening and closing.
- 11.18 **Photographic collections** should only be stored on roller-racking if that racking runs very smoothly and the shelves are fitted with side and back restraints. The photographs themselves should be very stable. It is recommended that glass negatives should not be stored on roller racking.

Cold storage

- 11.19 Recent research has identified the most suitable conditions of temperature and relative humidity for the long-term physical and chemical stability of gelatine emulsion-type photographic materials. Special packaging with air-tight seals will be required where the freezer or cold store does not have humidity control. This is discussed more fully in 13.16 - 13.21.

Handling of photographs

- 11.20 Photographs are very susceptible to damage by careless handling. Everyone who has to handle photographic items should receive training and subject to an appropriate level of supervision. In most situations it will be preferable to make copies available to researchers rather than originals. However, an assessment needs to be made of the risk to the original photograph from handling versus the risk from the copying process.
- 11.21 The following hints will help to avoid damage through handling:
- Prepare a clean work surface before starting work;
 - Wear clean cotton gloves, but if this is not possible always work with clean hands;

- The emulsion side of any photographic image (eg. print, negative, transparency, lantern slide, etc.) should never be touched;
- Use two hands to hold a photograph. If it is brittle, support it with a piece of stiff card;
- Remove envelopes from negatives - not vice-versa;
- Consideration should be given to the method and materials used for mounting and hinging the photograph to its surrounds. Poor methods and materials can cause damage during handling;
- Only trained staff should hinge-mount photographs (see 11.12);
- Only HB pencil should be used for writing captions and note-taking;
- Adhesive tapes, staples, pins, paper clips or rubber bands should never be used on photographic material.

Storage of motion picture films

- 11.22 Motion picture films are particularly susceptible to deterioration, and good storage is critical.
- 11.23 Motion picture film has historically been made of three types of film: cellulose nitrate base film, cellulose acetate base film and polyester base film.
- 11.24 Cellulose nitrate is unstable and highly flammable. It was manufactured from 1889 until 1951 though it was used primarily between 1900 and 1939. Cellulose acetate base film was introduced in 1935, and from 1939 onwards almost totally replaced cellulose nitrate for both amateur and professional still photography. Production of nitrate base moving picture film was gradually phased out, though 35mm moving picture continued to be available until 1951. All film is now made on cellulose tri-acetate or on polyester base, commonly referred to as safety film.
- 11.25 Cellulose nitrate base film will, at room temperature (and even at lower temperatures), slowly and continuously deteriorate, giving off various gases in the process. If these gases, particularly the oxides of nitrogen, cannot escape from the roll of film or container, they can react with the undeteriorated base and accelerate the rate of decomposition. As deterioration progresses, the base gradually turns yellow, then brown, becomes sticky and then brittle. It will finally disintegrate into an ashy-brown powder. This process results in, at least, the complete destruction of the picture/sound records. The reaction can lead to spontaneous combustion of the film with subsequent disastrous consequences for other adjacent material, people and buildings. (See Section 8.)
- 11.26 Cellulose acetate base film, at room temperature, also slowly decomposes, giving off vapours. The smell of these gases resembles vinegar and so this decomposition of the film is known as the 'vinegar syndrome'. Test strips which are sensitive to this product of deteriorating film are available from the Image Permanence Institute, Rochester NY. The film will also show other signs of deterioration such as stickiness, loss of picture/sound record or brittleness. It may eventually result in the total breakdown of the film itself, although the by-products are not flammable.
- 11.27 Motion picture films should be kept in the following storage conditions:
- Films are best kept wound emulsion-side-in onto plastic cores in clean metal cans. Any paper or card inside the can should be removed, as should any outside paper wrappings, and stored separately with appropriate documentation.
 - The film cans should be stored flat on metal racking in cool dry conditions, protected from harmful gases. The recommended storage environments are set out in Appendix B.
 - Cellulose nitrate film should be stored in a specifically designed storage area approved by the Fire Officer (see Section 8). It should not be kept with other types of film as this encourages decomposition of both types of films.

- In situations where a film has a separate magnetic soundtrack, the soundtrack should be stored separately from the associated picture film.
- Films should be stored separately from videotapes.

Handling of motion picture film

- 11.28 Motion picture films should be handled by the edges only, with lint-free cotton gloves. Ideally, films should not be handled at all by non-specialists, and museum films should never be projected or copied by anyone but a film conservator or the staff of a film archive (see Section 1).

Videos and other magnetic media

- 11.29 Videotape is essentially made up of a support layer, bound magnetic metal particles and a lubricant. In most cases the support layer is a stable polyester plastic (poly ethylene terephthalate). The lubricants used are small esters and the binder is usually polyester/polyurethane. It is this binder which is usually the most common source of problems, being prone to hydrolysis and oxidation. When the binder is lost or deteriorates, the magnetic metal particles are also lost, and it is these which hold the signal. The tape is enclosed in a plastic case.

- 11.30 The tapes should be regularly inspected for any deterioration. There are two ways in which deterioration can be detected:

- signal loss or 'drop out' is visible as white streaks across the screen when the tape is played. However, minor drop out is often concealed by the highly sophisticated correction mechanisms for signal loss present in some playback machines. A 'drop out' analyser can be used to scan the tape and produce a read out for signal loss. This is done without any correction mechanisms concealing the evidence of signal loss.
- physical signs of deterioration of the binder first appear on the edges of the tape as white or sticky deposits ('sticky tape syndrome'). Some signal loss will have already occurred at the point at which physical signs of deterioration are visible.

Deterioration can proceed very quickly so checks at six-monthly intervals are recommended.

- 11.31 Videos in the museum's permanent collection (video masters) should not normally be viewed other than for monitoring purposes. A copy should be made and used instead. If the museum does not have suitable copying facilities then copies can be made by a film archive (see Section 1).

The archival master - Given the instability of videotape, duplication is an essential part of the preservation of video. In order to preserve the video signals it is advisable to copy the video on to a digital format. Examples of digital formats are D2 which is used for composite video or D1 which is used for component video. Digital videotape has the advantage over analogue videotape in that copying the signal does not introduce progressive generational loss.

Maintaining and monitoring the archival master - Once the video signal has been transferred on to a digital format annual re-tensioning is recommended. This re-tensioning, where the tape is played through once and rewound, also provides an opportunity to check the condition of the tape. You should expect to need to copy the tape on to new stock every 8-10 years. This process provides the opportunity to change the archival format, if necessary, due to impending obsolescence or if developments in technology make this desirable.

In large collections where the cost of automatically copying the tapes on to new stock is prohibitive due to the large number of tapes involved, then sampling techniques such as the one being developed by Mary Baker at the Smithsonian Institution, Washington, are of great interest.

- 11.32 Videotapes should be stored upright in cool dry conditions, away from any strong electromagnetic forces, for example, power cables carrying large currents. Appendix B sets out recommended conditions.

Laser discs and CDs

- 11.33 Laser discs were launched in 1978 and are usually 12" discs in glass or plastic. Into the surface are etched millions of pits which are read by a laser beam which is directed at the surface. The reflected light pattern which is produced is then translated into a conventional analogue signal.
- 11.34 These discs are often used for exhibition purposes as the technology is very reliable, playing does not cause any physical wear to the disc, and re-wind time is eliminated. However the technology is too young to be assessed for archive purposes. Problems such as the blistering of the surface of the disc, warping and delamination have been noticed. The quality of the images produced also varies and newly made discs should be carefully checked. Laser discs are also unsuitable for works where highly saturated blocks of colour are used. If you are considering transfer on to laser disc for exhibition purposes an engineer must check that the colour levels do not exceed the critical parameters.
- 11.35 CDs (those carrying images as well as audio CDs and CD-ROMs) should be stored in 'jewel-box' CD containers, lint-free cotton sleeves, acid-free envelopes or in the special 'micropore' sleeves available from some conservation suppliers. (See Appendix F.)
- 11.36 They should be kept in a cool dry environment, away from ultra-violet radiation which could affect the polycarbonate base.
- 11.37 They should be handled with cotton gloves, and held in the centre and on the edge. The edge is however vulnerable; the lacquer collar is designed to prevent humidity migrating from the outer edge of the sandwich into the aluminised playing area. The label side of a CD is particularly vulnerable to damage; even the tiniest scratch can adversely affect the information layer immediately beneath the thin lacquer coating.
- 11.38 CDs should be cleaned only with a soft lint-free cloth from the centre out, never with cleaning agents.
- 11.39 CDs should not be marked with Identity Numbers; the unique CD code in the centre can be used to identify them.
- 11.40 In emergency, wet and wet-soiled CDs can be treated as described in 11.8.
- 11.41 Production CDs should be checked at one of the factories every 5 years to see if error rate is increasing. If it is, copy CDs should be made.
- 11.42 It is not known how stable the dyestuffs used in CD-R types are, so these should be kept in the dark, and error checks done on a regular basis.

Canon Ion Discs

- 11.43 Canon Ion discs are analogue carriers of photographic images, made directly on to disc in special cameras manufactured by Canon. These discs are known to be unstable, and museums should make preservation and access copies of images on to photographic negatives and prints or on to a computer format.

Images held on computers or computer discs

- 11.44 Computer storage for preservation purposes is still a very young science, fraught with problems. Both hardware and software become quickly obsolete, while the permanence of carriers is often unknown. 'Format hopping' from obsolete carriers to new ones seems at present to be the only way of ensuring that images are preserved. Museums which hold images in electronic form should therefore plan to transfer them regularly to new carriers.
- 11.45 Research into the best means of preserving both data and carriers is in progress; the following notes should be regarded as interim.
- 11.46 3.5" floppy computer discs should be removed from their plastic case ('caddies') for long-term storage. This is because the cases are made of unstable polymeric materials and recent types of plastic 'caddies' have shown signs of deterioration after two years in storage. The deterioration products can contaminate the disc inside, especially if they are enclosed in a drawer or diskette box.

Sources of advice and help

- Advice is available from the relevant departments of national and other larger museums, the British Film Institute, film archives and the National Preservation Office.

- Members of the Committee of National Photographic Collections will be glad to give advice on assessing the historic and technical importance of photographic items. A full list of members with addresses and relevant telephone and fax numbers is given in Appendix E.

- Useful advice will be found in:

Clark, S. 1989. *Photographic Conservation*. London: National Preservation Office.

Hendriks, Klaus B. 1991. *Fundamentals of Photograph Conservation: A Study Guide*. Toronto: National Archives of Canada and Lugus Publications.

Reilly, James M. and Constance McCabe. 1986. *Care and Identification of 19th-Century Photographic Prints*. Kodak publication No G-25. Rochester NY: Eastman Kodak Company.

Gordon, Paul L., ed. 1983. *The Book of Film Care*. Rochester NY: Eastman Kodak Company.

Boston, George, ed. 1991. *Guide to the Basic Technical Equipment Required by Audio, Film and Television Archives*. (Available from George Boston, 14 Dulverton Drive, Furzton, Milton Keynes MK4 1DE.)

Wilks, S. R. 1987. *Guidelines for the Handling of Videotape*. London: Home Office.

- The Image Permanence Institute (IPI) has developed a number of tests for photographic materials. These include the Photo Activity Test ANSI IT 9.16 : 1993) mentioned above and tests for assessing the deterioration of film. A-D Strips provide a simple and economic way to document objectively the extent of 'vinegar syndrome' and can help the curator decide when duplication of acetate film is necessary. They are available in packs of 250 from:

Image Permanence Institute
Rochester Institute of Technology
70 Lomb Memorial Drive
Rochester NY
USA
Tel: 001 716 475 5199
Fax: 001 716 475 7230

The IPI is an independent laboratory devoted to image preservation. It undertakes major research into the stability and preservation of imaging media and develops new ANSI and ISO preservation standards. A list of publications, products and services is available from the above address.

- A list of suppliers of materials such as photographic conservation paper, polyester sleeves, etc. is given at Appendix F. A useful source of information is:

The Preservation and Conservation Group of the Society of Archivists. 1994. *Directory of Suppliers*. London: Society of Archivists. This is available from:

Society of Archivists
Information House
20 - 24 Old Street
London EC1V 9AP

Protecting photographic collections from dust, dirt, pollutants and pests

- 12.1 All collection and storage areas must be kept clean and tidy, and a regime for regular cleaning and record-keeping instituted. Maintenance, monitoring, cleaning, pest control or related work should be undertaken or supervised by fully trained and experienced people.
- 12.2 Photographic collections must be protected from contact with harmful substances such as gases, fumes or other pollutants.
- 12.3 All harmful biologically active agents must be eliminated from collections and from all areas within a museum building.
- 12.4 Photographic collections should be regularly inspected for pest damage, or for any signs of physical or chemical deterioration. Reports based on these inspections should be recorded in the relevant documentation log.

Guidelines and notes

Prevention of dust and dirt

- 12.5 Dust can originate from both internal and external sources; good housekeeping and simple preventive measures can be used to reduce levels of dust and dirt to a minimum. Special precautions, such as temporarily relocating or sealing the collection is advisable during building work, however minor. Windows should be close fitting and kept shut, and concrete floors covered or sealed with material which will not affect the photographs. Photographic collections are comparatively easy to protect against dust by mounting, wrapping or casing, but there should be large loop-piled doormats (preferably 3m x 3m) at the doors to store-rooms, as well as at all entrances to the building. Doors and windows should be draught-proofed to minimise the entry of dust.

Cleaning of premises

- 12.6 A regular and effective cleaning regime should be established in consultation with a conservator.
- 12.7 Cleaners working in an area where collections are held should be supervised and should be given advice on potential hazards to the collections resulting from their activities and receive appropriate training on a regular basis.
- 12.8 Extreme caution should be used where wet cleaning is deemed necessary as it can lead to excessive humidity which can accelerate deterioration of photographic materials.
- 12.9 Only materials approved by a conservator should be used; some cleaning materials give off damaging chemicals.
- 12.10 Indoors, all surfaces should be regularly vacuum cleaned, not swept. Filters should be cleaned and changed regularly. Vacuum cleaners for those with allergies to dust and mould are now available, and these have more sophisticated filters. They are particularly suitable for cleaning photographic storage areas which may contain significant quantities of potentially damaging dust. They should conform to Section 2.2, Supplement 1 in *BS 5412: Specification for Type H Industrial Vacuum Cleaners for Dusts Hazardous to Health*.
- 12.11 All curtains, dust-sheets, etc., should be washed regularly.

Pollution

- 12.12 Photographic materials are exceptionally vulnerable to airborne pollution, and large and important collections may justify the use of mechanical ventilation plant that incorporates air-scrubbers or activated charcoal filters. Most photographic collections, however, will have to rely on much simpler precautions.

- 12.13 New building work and redecoration can introduce contaminants such as dust, solvent fumes or large quantities of moisture, which are potentially harmful to objects. Action should be taken to remove dust, excess moisture and other contaminants before collections are rehoused following such work. Whenever possible, a newly decorated space should not be used to house objects until tests show that dust and fume emissions, and humidity levels have been reduced to acceptable levels.
- 12.14 Building and finishing materials give off particles (eg. sawdust and concrete dust) and vapours (eg. ammonia and water), especially during and soon after application. This may continue for some months. Surface drying can be speeded up by using appropriately sized industrial dehumidifiers. As soon as practical after drying out, all porous surfaces should be sealed with a sealant safe for photographic materials.
- 12.15 Concentrations of external pollutants such as sulphur dioxide, ozone and nitrogen oxide, as well as smoke, dust and deposits from diesel fumes, can rise to high levels in urban environments. They can cause severe image deterioration and deterioration of associated materials, with particulate matter causing staining and soiling. The ingress of pollutants can be reduced by draught-proofing doors, sealing windows, and displaying and storing objects in sealed containers.
- 12.16 Many inorganic and organic materials are affected by gases, organic vapours and other compounds given off by construction or display materials such as manufactured boards, natural fibres such as wool felt, fire retardant coatings, recently applied paint and adhesives, and some hard woods including oak. All materials used for the display, storage or transport of objects should be tested by a recognised method before being used in close proximity to objects. Sufficient time needs to be allocated during the planning of any work for testing of materials before use. (See also Section 11.)
- 12.17 The following are some of the principal pollutants (together with some of common sources) which damage photographic materials:
- peroxides given off by some paints, coatings, sealants and new woods. Whenever possible photographic collections should be kept in steel cabinets rather than wooden ones;
 - ozone given off by photocopying machines or laser printers;
 - sulphides from deteriorating rubber, eg. rubber seals or gaskets, rubber adhesive or rubber bands and adhesive tape;
 - hydrogen sulphide, nitrogen oxides and sulphur dioxide industrial pollutants;
 - carbonyl sulphide given off by people, woollen clothing or carpet;
 - acetic acid, nitrogen oxides, hydrogen sulphide, butyrates;
 - salt carried by coastal winds.

Pest management

- 12.18 The main pests which threaten photographic collections in the UK are silverfish, carpet beetle (larval stage, known as 'woolly bears'), book lice, clothes moth larvae and woodworm.
- 12.19 Regular inspections, monitoring with insect traps and good housekeeping and standards of cleanliness are the most effective deterrents and will ensure that such agents remain inactive. Procedures should be in place for the quick and effective eradication of pests should an outbreak occur.
- 12.20 All incoming collections, together with their associated packaging materials, should be inspected for the presence of biologically active agents before being introduced to the main storage or display areas.
- 12.21 Eating and drinking should not be permitted in any collections area.

- 12.22 The storage and use of pesticides is regulated by the Control of Pesticides Regulations, 1986. Under these regulations any person using insecticides must have received appropriate training. Remedial treatments using pesticides to eliminate any biological pest should be kept to the minimum possible, in order to reduce the potential risk of damage to objects, the environment, and to staff and visitors.
- 12.23 A range of new pest control methods are being developed. These include heat treatment, freezing and other low temperature methods, the use of gases such as carbon dioxide or nitrogen in reduced oxygen atmospheres. Much of this work stems from the proposed banning of methyl bromide because of its ozone depleting properties. The advice of an experienced conservator should be sought before a decision to use any of these newer techniques is taken.
- 12.24 Mould may grow at high levels of relative humidity. This is generally above 65-75% and where the temperature is greater than 15°C.

Cleaning of objects

- 12.25 Photographic materials themselves should only ever be cleaned by or under the guidance of a conservator, but their containers (for example, boxes or canisters) may be dusted using a soft brush with a vacuum-cleaner nozzle covered with gauze beside it to collect up the dust dislodged.

Sources of advice and help

- Area Museum Councils can point to sources of advice on particular problems and types of object.

- The following publications are useful:

Bachmann, Konstanze, ed. 1992. *Conservation Concerns: A Guide for Collectors and Curators*. Washington: Smithsonian Institution Press.

Fleming, Anne and Elizabeth Martin. 1992. 'Conservation and Storage: Photographic Materials'. In *Manual of Curatorship*, eds. J. M. A. Thompson, *et al*, 340-345. Oxford: Butterworth-Heinemann/Museums Association.

Museums Association (MA). Published quarterly. *Museum Practice*. London: Museums Association.

Pinniger, D. 1994. *Insect Pests in Museums*. London: Archetype Publications.

Sandwith, H. and S. Stainton. 1993. *The National Trust Manual of Housekeeping*. Harmondsworth: Penguin.

Knell, Simon, ed. 1994. *Care of Collections*. London: Routledge.

- Several organisations, including some commercial conservation firms, offer a testing service for the suitability of materials for use in the exhibition or storage of museum specimens (sometimes called 'Oddy' tests). These include:

Department of Conservation
British Museum
Great Russell Street
London WC1B 3DG
Tel: 0171 323 8772

Wiltshire Library and Museum Service
(Contact: Virginia Neal)
Conservation Centre
Wyndham House
65 The Close
Salisbury SP1 2EN
Tel: 01722 331321

These tests are described in:

Green, L.R. and D. Thickett. 1995. 'Testing Materials for Use in the Storage and Display of Antiquities - Revised Methodology', in *Studies in Conservation* 40.

- The Health and Safety Commission and the Health and Safety Executive publish a great deal of information which is of interest to museum managers. Many publications are available free of charge. Contact: HSE Books, PO Box 1999, Sudbury, Suffolk, CO10 6FS (Tel: 01787 881165). A full list of current Health and Safety Commission/Health and Safety Executive publications, *Publications in Series*, is published twice yearly.

- Advice on pesticides is available from all regional offices of the Health and Safety Executive, and from:

Pesticides Registration Section
Health and Safety Executive
Magdalen House
Stanley Precinct
Bootle
Merseyside L20 3QZ
Tel: 0151 951 3535

- 13.1** The planning phase of all significant activities within the museum building, such as construction work, refurbishment and exhibitions, should include an assessment of the impact it will have on the museum's environmental conditions, and of its potential risks to the collection.
- 13.2** Buildings used to house photographic collections should be inspected annually to ensure they provide adequate physical protection against the weather, keep out pollutants, dust and dirt and are generally fit for their purpose. Building maintenance should have a high priority and an adequate budget.
- 13.3** All heating, ventilation and air-conditioning systems should be checked and maintained regularly by suitably qualified engineers. Spare parts should be stocked on site wherever possible.
- 13.4** A long-term environmental monitoring programme should be developed. Environmental records should be analysed regularly and summary reports presented to the museum's management team.
- 13.5** A programme for the regular calibration and maintenance of all environmental monitoring and local control equipment must be established.

Guidelines and notes

- 13.6** Managing the museum environment includes monitoring and control of relative humidity, temperature, light (including ultraviolet radiation) and air quality; pest management; and an assessment of the environmental (heat and moisture) effects of visitors.

The building envelope

- 13.7** New buildings intended to house collections should be constructed using suitable high-quality materials and incorporating low-energy design features so that they perform as good weather buffers and achieve as stable an internal environment as possible.
- 13.8** When considering the refurbishment or re-use of an ageing building, an assessment of both the building fabric and the engineering services should be carried out by a suitably qualified building specialist prior to any decision on environmental control methods.
- 13.9** If an historic house is to be used as a museum, decisions relating to the provision of environmental control should aim to achieve a balance between the merit and sensitivity of the building fabric and the specific needs of the collections. The building itself may be the prime 'object' in the collection and so its needs may over-ride those of the contents.

Monitoring and control

- 13.10** Routine environmental monitoring should cover all four seasons, the records should be compared to external climatic conditions over the same period and should take account of visitor numbers in both display and storage areas. One person can release in one hour approximately 100 ml of water plus the same amount of heat as a 60 watt light bulb.
- 13.11** Engineering services for environmental control must not be used to provide 'a quick technical fix'. They should be designed and used to support and improve, and not to replace, the stability provided by the building fabric.
- 13.12** Prior to the acquisition of new premises, there should be a short period of intensive monitoring outside the building and at the four compass points within the building. This information will help establish whether the building is worthy of consideration at all, and, if it is, identify areas that are most suitable for different activities based on their natural environmental stability.

13.13 Zones for particular object storage needs can be created by utilising suites of rooms with suitable similar environmental characteristics, or by locally conditioning one room, or by the use of microclimates within display cases.

13.14 Passive measures to stabilise the environment within a building or a room should be taken first. Draught-proofing, thermal insulation and multiple glazing are ways in which temperature fluctuations can be reduced. However, these measures can also reduce air movement in a space, which can have a harmful effect on collections, occupants and the buildings. Technical advice from a building specialist may be needed to identify the causes of instability before so-called 'improvements' are made.

Maintenance

13.15 Appropriate levels of relative humidity and temperature can be more easily sustained if the building is watertight, with all possible sources of damp such as failed or non-existent damp-proof membranes, leaking pipes, water tanks, faulty guttering and missing roof tiles, identified and remedied.

Relative humidity and temperature

13.16 Photographic materials are very susceptible to damage from unsuitable climatic conditions, and the situation may be complicated as they are made of a variety of materials.

13.17 Considerable research is in progress into the optimum temperature and relative humidity in which to keep photographs. The general view is that for a mixed photographic collection 35-40% is the optimum level of relative humidity. In general, cooler storage temperatures are better. Colour material is usually recommended to be stored at 2°C or less. Extremes of high and low relative humidity and the large cyclical fluctuations caused by such excursions must be avoided.

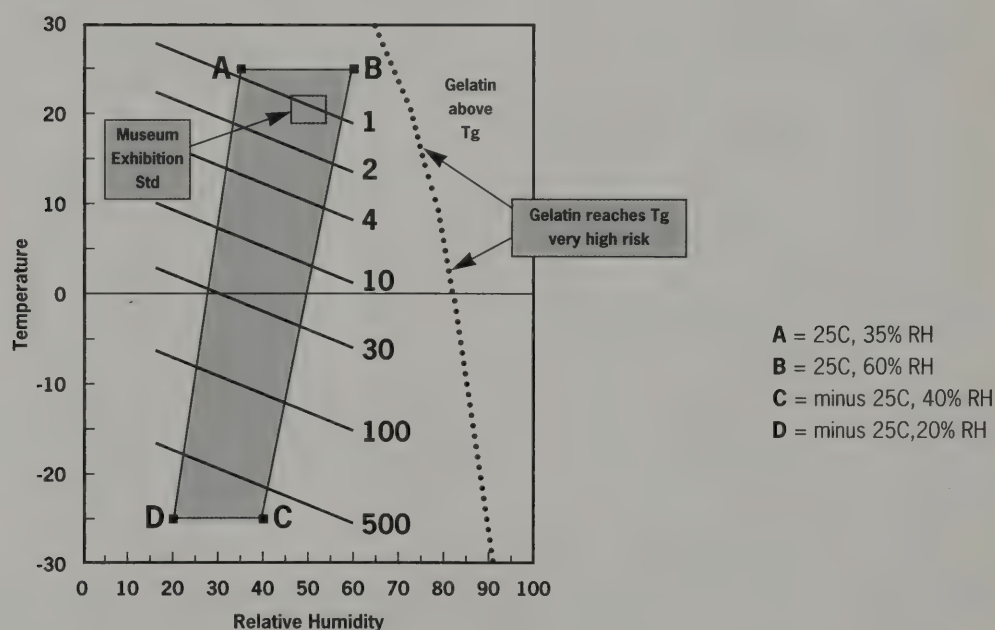


Fig. 1. The Quadrant ABCD defines the safe range of temperature and RH for gelatin binder photographic materials. The contour lines map the relative chemical stability compared to a typical museum exhibition environment. When conditions allow gelatin to go above its glass transition (Tg) rapid image degradation can occur. (Mark H. McCormick-Goodhart).

13.18 Recent research at the Smithsonian Institution, Washington, has shown the way to a more sensitive and refined approach to the storage of photographic materials. The diagram above indicates the safe outer parameters for storage and use of gelatine photographic material,

which is found in significant quantities in most collections. As long as gelatine emulsions remain within these parameters, they will experience no irreversible physical damage, although chemical rates of deterioration will vary across the quadrant in the diagram, being lowest in the cooler, drier areas.

- 13.19 The glass transition temperature of gelatine is strongly influenced by moisture content. Higher relative humidity increases the gelatine moisture content and lowers the temperature at which the gelatine's glass transition occurs. The glass transition temperature must not be exceeded because the hard and dry gelatine emulsion will revert to the gel state, becoming soft and rubbery. Photographic emulsions in this state will stick to each other and to other surfaces. Changes in surface finish can occur, and the rate of deterioration to the embedded silver image particles is greatly increased. Within Quadrant ABCD in Fig. 1, temperature plays a far more significant role in increasing the chemical stability than relative humidity (10 or 100-fold as opposed to a factor of 2 or 3). The stability at point D is approximately 1000 times that at point B. Cold temperature storage therefore has a considerable value for conservation of photographic material, either by freezing or using cold storage vaults.
- 13.20 Cold storage must always be complemented by careful planning for exhibitions and research. Care must be taken to avoid condensation on removing the material from cold storage. If the objects are initially stored in sealed packages with minimal air space at room temperature within the allowable RH limits, they will automatically remain within the allowable RH limits as temperature drops. The risk of condensation is removed provided sufficient time is allowed for the object to reach room temperature before taking it out of the packaging. Time out of storage environment for display or research should always be kept to a minimum.
- 13.21 It is almost certain that other emulsions than gelatine, such as albumen and collodion, benefit from cooler temperatures. Research is currently underway in this area. However, until a safe lower limit has been established, it is recommended that the cold storage of albumen and collodion prints, as well as Ambrotypes (collodion wet plate positives) and Tintypes be undertaken with caution and that temperatures below 5°C be avoided.

Air-conditioning

- 13.22 Air-conditioning is only one among many options available to control the museum environment. The cost of the plant is high and its installation in a building not specially designed for the purpose can be difficult and expensive. In addition, museum managers should note the high level of operating and maintenance costs. Air-conditioning should not, therefore, be seen as a simple solution to controlling the museum environment.
- 13.23 Air-conditioning can work successfully when the volume of tightly controlled air is restricted, such as in display cases, or when a system is installed in new museum buildings. Air-conditioning should preferably be localised, bearing in mind the risks posed to objects from the seemingly inevitable malfunction of equipment.
- 13.24 A decision to install air-conditioning should be based on:
- the need for tight control of relative humidity and temperature for the collection;
 - the need to control the heat and moisture effects of large numbers of visitors;
 - the affordability of the system, including the running and maintenance costs for the duration of its life.

Light

- 13.25 Photographic materials exhibit varying degrees of sensitivity to light. In particular, those that are old or deteriorating can be exceptionally sensitive to excessive or inappropriate light levels. For display purposes, 50 lux is the optimum lux level. No photographic items should be exposed to light levels above 100 lux for extended periods.
- 13.26 All storage and display areas should be kept dark when not in use. Curtains, blinds, screens or opaque dustsheets provide an effective and economic way of reducing light levels.

- 13.27 The period of exposure must be kept to a minimum, as damage by light is cumulative. It is possible to vary the amount of light falling on objects, particularly when daylight is used, if a maximum cumulative exposure value (in lux-hours per year) is established. For example, an object normally exposed to 100 lux would be illuminated for approximately 2,250 hours during an average year. In this case the cumulative exposure is 225,000 lux-hours. If the level of illumination were doubled and the period of exposure halved, the cumulative exposure would remain the same.
- 13.28 Ultraviolet radiation levels can be reduced by use of protective filters; film or varnish can be applied to windows or diffusers, and filters to lamps. These films have a limited life and require monitoring and regular replacement.
- 13.29 Both natural and electric light sources produce heat, which can damage photographic materials.
- 13.30 All photographic materials should be positioned away from sources of heat, and excess heat should be ventilated away from objects. Some display lighting equipment, notably low-voltage types, produce less heat - though care needs to be taken when positioning transformers which should be located outside display cases.
- 13.31 Light sources for illuminating photographs should be of the tungsten incandescent type, except in the case of Cibachrome (now known as Ilfochrome) which is less sensitive to cool white fluorescent light of the same intensity.

Sources of advice and help

- Advice can be given by:

Area Museum Councils

The Conservation Unit of the Museums & Galleries Commission

- A comprehensive introduction to the whole field is:

Cassar, May. 1995. *Environmental Management: Guidelines for Museums and Galleries*. London: Museums & Galleries Commission and Routledge.

- Bordass, W. (ed May Cassar). 1996. *Museum Collections in Industrial Buildings: A selection and adaptation guide*. London: Museums & Galleries Commission.

- The preprints of the contributions to the International Institute for Conservation of Historic and Artistic Works (IIC) Ottawa Congress, September, 1994, contain many important papers on current practice and research in the field of preventive conservation. These are published in:

Roy, Ashok and Perry Smith, eds. 1994. *Preventive Conservation: Practice Theory and Research*. London: International Institute for Conservation.

Copies are available from:

International Institute for Conservation
of Historic and Artistic Works
6 Buckingham Street
London WC2N 6BA

- Other useful publications include:

Staniforth, Sarah, Bob Hayes and Linda Bullock. 1994. 'Appropriate Technologies for Relative Humidity Control for Museum Collections Housed in Historic Houses. In *Preventive Conservation: Practice Theory and Research*, eds. Ashok Roy and Perry Smith. 123-128. London: International Institute for Conservation.

Frost, Murray. 1991. 'Planning for Preventive Conservation'. In *Manual of Museum Planning*, eds. B. Lord and G. Dexter Lord, 127-160. London: HMSO.

Chartered Institution of Building Services Engineers (CIBSE). 1994 (revised edition). *Lighting Guide: Museums and Galleries*. London: CIBSE.

Energy Efficiency Office. 1994. *Introduction to Energy Efficiency in Museums, Galleries, Libraries and Churches*. London: Department of the Environment.

- The most recent research into the preservation of photographic materials is included in the publications of the American National Standards Institute (ANSI). The background to the work of ANSI's committees is described in:

Ram, A. Tulsi. 1988. 'The "Living" Permanence Standards for Photographic Films'. In *Proceedings of Conservation in Archives: International Symposium*, Ottawa, Canada, May 10-12, 1988.

Adelstein, Peter. 1995. 'Standards on the Permanence of Imaging Materials'. In *Research Techniques in Photographic Conservation: Proceedings of Conference held in Copenhagen, 14-19 May, 1995*. Copenhagen: Royal Danish Academy of Fine Arts.

Ware, M. 1994. *Mechanism of Image Deterioration in Early Photographs: The Sensitivity to Light of W.H.F. Talbot's Halide-Fixed Images 1834-1844*. London: The Science Museum and National Museum of Film Photography & Television.

McCormick-Goodhart, M. H. 1996. 'The Allowable Temperature and Humidity Range for the Safe Use and Storage of Photographic Materials'. In *The Journal of the Society of Archivists*. vol. 17. no. 1.

Bogvad Kejser, U. and M. S. Koch, eds. 1996. *Research Techniques in Photographic Conservation: Proceedings of the Copenhagen Conference, 1995*. Copenhagen: Royal Danish Academy of Fine Arts.

- The Canadian Conservation Institute publishes a series of information sheets on the care of museum objects under the title 'CCI Notes'. Section 16 of this series is devoted to the Care and Conservation of photographic materials. The 'Notes' are available from:

Canadian Conservation Institute
1030 Innes Road
Ottawa K1A 0C8
CANADA

Protecting people from photographic collections

- 14.1** All museums must comply with the letter and the spirit of all legislation designed to protect the health and safety of people on the museum site.
- 14.2** The museum must draw up and maintain a Safety Policy, covering all aspects of its work. The Policy should take into account the various categories of people using its premises, from schoolchildren to specialists, and should seek to identify and prescribe for all risks inherent in the museum's premises, collections and activities.
- 14.3** All museum staff and volunteers must receive regular training to ensure competence in health and safety aspects, and should be fully familiar with the museum's Safety Policy.

Guidelines and notes

- 14.4** Although this booklet is principally concerned with the protection of objects, the museum's first responsibility is to protect people, and the two need to be parts of one policy and approach. This Section, therefore, draws attention to some of the particular threats posed by photographic collections.
- 14.5** A wide variety of health and safety legislation applies to museums, and serves to help protect visitors, volunteers and staff. The principal laws affecting museums in the United Kingdom are:
- Health and Safety at Work Act 1974
 - Health and Safety (General Provisions) Regulations 1992
 - Management of Health and Safety at Work Regulations 1992
 - Provision and Use of Work Equipment Regulations 1992
 - Manual Handling Operations Regulations 1992
 - Workplace (Health, Safety & Welfare) Regulations 1992
 - Personal Protective Equipment at Work Regulations 1992
 - Offices, Shops and Railway Premises Act 1963
 - Control of Substances Hazardous to Health Regulations 1988
 - Transport and Works Act 1992
 - Environmental Protection Act 1990
 - Factories Acts 1969
- 14.6** Generally speaking, most types of item found in photographic collections pose few hazards. Some hazards that may be found are:
- Broken glass negatives can cause cuts.
 - Handling old negatives can cause dermatitis.
 - Boxes of glass negatives can be heavier than the *Manual Handling Regulations* guide limits of 25kg for men and 16.7kg for women. Similar care is needed with films and videotapes.
 - Deteriorated acetate and nitrate films can cause throat and skin irritations.
 - Fungal spores from mould may cause an allergic reaction (it may exacerbate asthma) in some people.

- Unidentified chemicals in un- or wrongly-labelled containers.
- Mercury in Daguerreotypes and Ambrotypes.

14.7

Nitrate stock (both sheet and film) exhibits special dangers and these are discussed in earlier Sections, particularly 8.21 - 8.25 and 11.22 - 11.25.

Sources of advice and help

- The Health and Safety Executive has a number of local offices throughout the United Kingdom, and should be consulted at an early stage. A full list of current Health and Safety Commission/Health and Safety Executive publications, *Publications in Series*, is published twice yearly. Contact: HSE Books, PO Box 1999, Sudbury, Suffolk, CO10 6FS (Tel: 01787 881165).
- A useful publication on this subject (available from Conservation Resources (UK) Ltd) is:

Rempel, Siegfried and Wolfgang. 1992. *Health Hazards for Photographers*. New York: Lyons and Burford.


- Two organisations able to offer advice and help to members are:

RoSPA
Cannon House
The Priory
Queensway
Birmingham B4 6BS
Tel: 0121 248 2000
Fax: 0121 200 1254

The British Safety Council
National Safety Centre
Chancellors Road
Hammersmith
London W6 9RS
Tel: 0181 741 1231
Fax: 0181 741 4555

A

National Museum of Photography, Film & Television: Loan Form and Guidance Notes.

 The National Museum of Science & Industry National Museum of Photography, Film & Television Pictureville, Bradford, West Yorkshire, BD1 1NQ Telephone (0274) 727488 FAX (0274) 723155		LOAN FORM To be completed for all objects lent by the National Museum of Photography, Film & Television <div>00444</div>	
BORROWER:		Please sign both copies of this loan form at A below. Return the white copy to the National Museum of Photography, Film & Television. Keep the pink copy.	
Borrower		Date of loan	Date of return
		Purpose of loan/Title of exhibition	
Borrower's reference		NMPFT file no.	
Contact at borrowing institution		Curator of objects	Tel. no.
Tel. no.	ext.	NMPFT Loan Co-ordinator	Tel. no.
Object description(s)		Value(s)	Inventory number(s)
Conditions applying to the loan: The conditions listed overleaf and circled below			
1a	1b	1c	1d
1e	②	③	④
	⑤	⑥	⑦
	⑧	⑨	⑩
	11	12	lux max
	13	14	15
16	%rh	17	18
19	20	21	22
23	24	25	26
27	28	29	30
31	and the following:		
<div>A</div>		I agree to accept the objects described above on loan from the National Museum of Photography, Film & Television under the conditions specified above. Signed _____ Date _____	
The National Museum of Photography, Film & Television agrees to lend the objects described above on acceptance by the borrower of the stated conditions. Signed _____ Date _____			

The Museums & Galleries Commission would like to thank the National Museum of Photography, Film & Television for kind permission to reproduce their Loan Form and Guidance Notes in this Appendix.

Information for Borrowers

All loans are made by courtesy of the
Board of Trustees of the Science Museum who are the
administrators of the National Museum of Photography,
Film & Television

Introduction

The National Museum of Photography, Film & Television can exhibit only a proportion of its extensive collections and is pleased to lend objects for exhibition by other recognised institutions provided the safety and well-being of the object(s) can be assured.

Loans are not normally made to individuals and will generally be made from the reserve collections although, in exceptional circumstances objects may be lent which are normally on display in the Museum. Short-term loans for film, television and commercial display may be possible although a fee may be charged.

The Museum may refuse a loan without stating a reason.

Application for a loan

A loan request must be made in writing on the headed paper of the institution concerned giving **at least six weeks notice**. The name and status of the individual who would be responsible for the object(s) on behalf of the institution must be specified, as must the period of loan, approximate date of collection from the Museum and the venue and title of the exhibition (if any).

Loan form

The person who is to be responsible for the object(s) will be asked to sign a loan form agreeing to accept the object(s) on loan under the conditions stated on the form. The conditions generally applied are listed below. Conditions 1 - 10 apply to **all** loans, any of the conditions 11 - 29 and any other additional conditions may be specified in some cases.

Security

Approval for a loan will not be given until the Museum is satisfied that adequate security against theft or damage can be provided by the borrower. The standard of security required will vary with the nature of the object(s), the place of exhibition and the degree of public access allowed.

The National Museum of Photography, Film & Television will be advised as necessary by the National Museums Security Adviser who may visit the premises concerned.

Prior to the loan

No object(s) will be lent by the Museum until they have been recorded by recent and sufficient photographs and, where appropriate, a condition report. If suitable photographs do not exist at the time of the application they will be taken at the borrower's expense. The borrower may also on occasions be charged for the preparation of a condition report.

Packing

The National Museum of Photography, Film & Television will usually carry out (or have carried out by a specialist contractor) appropriate packing of the object(s) and may pass on the cost to the borrower or will otherwise supervise a packer employed and paid for by the borrower.

Transport

Loans will normally be delivered to and collected from exhibitions by one or more members of the Museum staff, by whom they must be accompanied throughout the journeys, put on and taken off display and by whom alone they may be handled. The escort(s) will personally witness and oversee

packing and unpacking, loading and unloading of loan material, and any transfer between transport. Where appropriate, this Museum will supervise/undertake the installation of its own loan material. On occasions, when the borrower's agent collects material, the agent will be asked to sign a receipt at the time of removal and the borrower will be asked to sign a receipt to confirm the safe arrival of the object(s). Objects will not be released until the appropriate indemnity/insurance arrangements have been made.

Customs (for overseas loans)

Customs formalities should be cleared by the Museum or its appointed agent at the premises of final packing before despatch. The borrower is responsible for making every effort to ensure that customs examination is made on their premises on arrival. No loan will be unpacked for examination at any point on the journey; the same procedure will apply for the return journey. Both parties are responsible for ensuring the efficient movement of the loan material through ports of entry and exit.

During the loan period

All loans will be for a fixed period rather than an 'indefinite' period although the Museum may allow renewal of the loan at the end of the initial loan period. For the duration of the loan, objects must not be removed from the area where they are exhibited except in the event of emergency (eg flood disaster, fire). In this case, custom-built protection is not be removed from the object(s). During the period of the loan the Museum will ask for frequent reports on the condition of the object and for the indemnity/insurance value to be increased if necessary. An officer of the Museum may visit the borrowing institution on occasions to inspect the object(s) and to confirm that the conditions of loan are being observed. This will be at the borrower's expense. Dusting and other light cleaning may be carried out but the object(s) must not be dismantled, repaired, moved or otherwise interfered without prior written permission by the National Museum of Photography, Film & Television. Photographic images must never be removed from their frames or cases.

Standard conditions of loan

Indemnity/Insurance Arrangements (The Museum will apply one of the conditions 1a - 1e)

- 1a** The object(s) will be covered by the Government Indemnity Scheme. The borrower undertakes to meet the minimum liability condition for loss or damage of £100 plus 1% of the value of the object where this exceeds £4000 for each object borrowed. This may be effected by commercial insurance. The value is as stated on the front of the loan form and will be reviewed annually.
- 1b** The borrower undertakes to take out an insurance policy to cover all loss or damage to the object(s) to the value stated on the loan form. Documentary proof of insurance must be provided before the object(s) can be released by the Museum. The value will be reviewed annually.
- 1c** The borrower will provide an approved indemnity for the object(s) to the value stated on the loan form. This value will be reviewed annually.
- 1d** The Museum will arrange insurance for the object(s) and the borrower will be invoiced accordingly.
- 1e** No indemnity/insurance arrangements are required.
- 2** The National Museum of Photography, Film & Television reserves the right to withdraw the objects at any time during the period of the loan. In particular, failure to comply with the conditions of the loan may result in the object(s) being recalled.
- 3** Reasonable access to objects on loan must be provided by the borrower to the officer(s) of the National Museum of Photography, Film & Television for the purposes of inspection.
- 4** The borrower will ensure that the objects are maintained in a suitable condition for display. Dusting and other light cleaning may be carried out but no repairs, restoration, conservation or extensive cleaning may be undertaken without the prior written permission of the National Museum of Photography, Film & Television.
- 5** The National Museum of Photography, Film & Television must be informed immediately of the loss of the objects or of any damage to them of whatever nature including any such discovered on first receipt/delivery.
- 6** The objects must not be operated without the prior written permission of the National Museum of Photography, Film & Television.

- 7** The borrower may not lend the objects to any third party nor may the object(s) be removed from the specified display premises without the prior written permission of the National Museum of Photography, Film & Television.
- 8** The objects will not be released until the National Museum of Photography, Film & Television is satisfied with the standard of packing and protection of the objects on any vehicle. For the return to the National Museum of Photography, Film & Television, the borrower will provide packing identical to that used on the outward journey. The cost of all the packing and transport may be borne by the borrower.
- 9** An acknowledgement to the National Museum of Photography, Film & Television (by courtesy of the Board of Trustees of the Science Museum) must be given in all exhibition labels and catalogue entries for the object(s). Two copies of any published exhibition catalogue which includes entries for the object(s) must be provided for the National Museum of Photography, Film & Television.
- 10** Photographs or other reproductions of the objects must not be made for commercial purposes by the borrower or other bodies or persons without the prior written permission of the National Museum of Photography, Film & Television. Photographs of the objects may be taken by the borrower for record purposes, for catalogues and for exhibition publicity unless condition 30 applies. The National Museum of Photography, Film & Television has no objection to photographs being taken by visitors for private study unless condition 31 applies.
- Security and Environment**
Any of the following conditions may be applied. For conditions 12 - 16 details will be specified for individual loans on the advice of the Museum's Conservation Section.
- 11** The objects must be exhibited in a secure building in areas adequately protected against extremes of temperature, humidity, light and vibration.
- 12** Light levels must not exceed the specified level.
- 13** Ultraviolet light must be excluded.
- 14** Daylight must be excluded.
- 15** The temperature must be kept within the specified range.
- 16** The relative humidity must be maintained within the specified range.
- 17** Specialised materials will be required for the mounting and display of the objects.
- 18** The objects must be under regular surveillance by the borrower's staff whilst open to the public.
- 19** The objects must be under regular surveillance by the borrower's staff 24 hours per day.
- 20** The objects must be in an area monitored by an alarm system whilst closed to the public.
- 21** The objects must be exhibited behind a barrier and out of reach of the public.
- 22** The objects must be exhibited in a locked showcase.
- 23** The objects must travel in a fitted packing case to be made at the borrower's expense.
- 24** The objects must be transported in a covered van.
- 25** An officer of the National Museum of Photography, Film & Television must accompany the objects on outward and return journeys or similarly attend upon their receipt and despatch at the borrower's premises. This will be at the borrower's expense.
- 26** An officer of the National Museum of Photography, Film & Television must accompany the objects at all times during the period of the loan.
- 27** Under no circumstances are loan costumes to be worn or tried on.
- 28** The objects are to be handled as little as possible and protective gloves must be worn.
- 29** All photographic material must be hand-carried in the pressurised cabin of an aircraft.
- 30** No photographs may be taken by the borrower.
- 31** No photographs may be taken by visitors.



Relative humidity and temperature for the storage of photographic materials and records relating to them

There is great debate about acceptable levels for general storage and display and best practice standards for long-term preservation. Many Standards publications exist from organisations such as the British Standards Institute, International Standards Organisation and American National Standards Institute.

We have attempted to summarise here the temperature and RH recommendations made throughout this Standard. Control of the environment is a major factor contributing to the safe storage and display of the collection.

Type of Photographic Material	Optimum Storage Conditions	Practical Working Environment Conditions	
		Temperature °C	Relative Humidity
Documents on paper	Cold storage as described in Section 13.	15° - 25°C	eg. 32-56% at 15°C
Photographic material with gelatin emulsions including:	eg. 20-40 % RH at -25°C		34-58% at 20°C
B&W prints			35-60% at 25°C (see Section 13)
B&W negatives			
- Cellulose ester base	Prevention of condensation on cooled materials is extremely important.		Within this environmental range, cooler and drier conditions increase chemical stability.
- Polyethylene terephthalate base			
Glass negatives (silver images)			
Microform/Film (master & copies)			
- Cellulose ester base			
- Polyethylene terephthalate base			
Colour slides/negatives			
Colour prints			
Albumen and collodion paper prints			
Daguerreotypes	Cold storage (see Section 13)		
Wet collodion negatives and Ambrotypes	Not below 5°C		
Tintypes	eg. 5°C at 29-52% RH ⁽¹⁾		
Magnetic recording media	Cold storage (see Section 13)		
Optical or laser discs	Not below 5°C		
Computer discs	eg. 5°C at 29-52% RH ⁽²⁾		

⁽¹⁾ Many objects in this category are cased photographs. If *no* hygroscopic materials (eg. paper and board mounts) are present within the sealed case, a 15°C lower limit is recommended. This is necessary to prevent condensation in the sealed case microclimate upon cooling.

⁽²⁾ Modern recording materials are often accompanied by cellulosic components such as paper labels and enclosures. The RH range cited above therefore reflects the recommendations in Section 13.

In general, for all materials listed above, lower temperatures and RH values increase chemical stability. The minimum temperature and RH values cited reflect physical stability parameters. Refrigeration of materials requires planning to achieve proper RH control. Time should be allowed for materials to acclimatise to room temperature before use in order to counteract any possible condensation.

Sources of advice and information

Area Museum Councils

Area Museum Council for the South West
Hestercombe House
Cheddon Fitzpaine
Taunton TA2 8LQ
Tel: 01823 259696
Fax: 01823 413114

Council of Museums in Wales
The Courtyard
Letty Street
Cathays
Cardiff CF2 4EL
Tel: 0222 225432
Fax: 0222 668516

East Midlands Museums Service
Courtyard Buildings
Wollaton Park
Nottingham NG8 2AE
Tel: 01159 854534
Fax: 01159 280038

North of England Museums Service
House of Recovery
Bath Lane
Newcastle upon Tyne NE4 5SQ
Tel: 01912 221661
Fax: 01912 614725

Northern Ireland Museums Council
185 Stranmillis Road
Belfast BT9 5DU
Tel: 01232 661023
Fax: 01232 683513

North West Museums Service
Griffin Lodge
Cavendish Place
Blackburn BB2 2PN
Tel: 01254 670211
Fax: 01254 681995

Scottish Museums Council
County House
20-22 Torphichen Street
Edinburgh EH3 8JB
Tel: 0131 229 7465
Fax: 0131 229 2728

South Eastern Museums Service
Ferroners House
Barbican
London EC2Y 8AA
Tel: 0171-600 0219
Fax: 0171-600 2581

West Midlands Area Museum Service
Hanbury Road
Stoke Prior
Bromsgrove
Worcestershire B60 4AD
Tel: 01527 872258
Fax: 01527 576960

Yorkshire & Humberside Museums Council
Farnley Hall
Hall Lane
Leeds LS12 5HA
Tel 0113 2638909
Fax 0113 2791479

British Association of Picture Libraries and Agencies (BAPLA)
18 Vine Hill
London EC1R 5DX
Tel: 0171 713 1780
Fax: 0171 713 1211

British Film Institute
21 Stephen Street
London W1P 1PL
Tel: 0171 255 1444
Fax: 0171 436 7950

British Safety Council
National Safety Centre
Chancellors Road
Hammersmith
London W6 9RS
Tel: 0181 741 1231
Fax: 0181 741 4555

British Universities Film & Video Council
55 Greek Street
London W1V 5LR
Tel: 0171 734 3687/8

Royal Photographic Society
The Octagon
Milsom Street
Bath BA1 1DN
Tel: 01225 462 841
Fax: 01225 448 688

Committee of National Photographic Collections
 Chairman, Mark Howarth-Booth
 Curator of Photographs
 The Victoria & Albert Museum
 South Kensington
 London SW7 2RL
 Tel: 0171 938 8605
 Fax: 0171 938 8615

Federation of Commercial Audio-Visual Libraries (FOCAL)
 PO Box 422
 Harrow
 Middlesex HA1 3YN
 Tel:/Fax: 0191 423 5853

Fédération Internationale des Archives du Film (FIAF)
 Secretariat
 rue Franz Merjay 190
 1180 Brussels
 Belgium
 Tel: 00 32 2 343 0691
 Fax: 00 32 2 343 7622

Fire Protection Association
 Melrose Avenue
 Borehamwood
 Herts WD6 2BJ
 Tel: 0181 207 2345
 Fax: 0181 236 9701

Health and Safety Executive
 Pesticides Registration Section
 Magdalen House
 Stanley Precinct
 Bootle
 Merseyside L20 3QZ
 Tel: 0151 951 3535

Health and Safety Publications
 HSE Books
 PO Box 1999
 Sudbury
 Suffolk CO10 6FS
 Tel: 01787 881165

Image Permanence Institute
 Rochester Institute of Technology
 70 Lomb Memorial Drive
 Rochester NY
 USA
 Tel: 001 716 475 5199
 Fax: 001 716 475 7230

International Council of Museums
 Conservation Committee (ICOM-CC)
 Photographic Records Group
 Co-ordinator, Bertrand Lavéderine
 CRCDG
 3 rue Geoffroy-Saint Hilaire
 750005 Paris
 FRANCE

Museum Documentation Association
 Lincoln House
 347 Cherry Hinton Road
 Cambridge CB1 4DH
 Tel: 01223 242848
 Fax: 01223 213575

Museum Training Institute
 First Floor, Glyde House
 Glydegate
 Bradford BD5 0UP
 Tel: 01274 391056/391087/391092/391773
 Fax: 01274 394890

Museums & Galleries Commission
 16 Queen Anne's Gate
 London SW1H 9AA
 Tel: 0171 233 4200
 Fax: 0171 233 3686

NAPLIB (formerly National Association of Aerial Photographic Libraries)
 c/o RCHME
 National Monuments Record Centre
 Kemble Drive
 Swindon SN2 2GZ

National Museum of Photography, Film and Television
 Pictureville
 Bradford BD1 1NQ
 Tel: 01274 727 488
 Fax: 01274 723 155

National Preservation Office
 The British Library
 Great Russell Street
 London WC1B 3DG
 Tel: 0171 323 7612
 Fax: 0171 412 7796

Photographic Materials Conservation Group

Secretary, David Parker
Conservation Department
Public Record Office
Ruskin Avenue
Kew

Surrey TW9 4DU
Tel: 0181 876 3444
Fax: 0181 878 8905

Public Record Office
Ruskin Avenue
Kew

Surrey TW9 4DU
Tel: 0181 876 3444
Fax: 0181 878 8905

Royal Commission on Historical Manuscripts

Quality House
Quality Court
Chancery Lane
London WC2A 1HP
Tel: 0171 242 1198
Fax: 0171 831 3550

Royal Society for the Prevention of Accidents (RoSPA)

Cannon House
The Priory
Queensway
Birmingham B4 6BS
Tel: 0121 200 2461
Fax: 0121 200 1254

Scottish Museums Documentation Unit
National Museums of Scotland

Chambers Street
Edinburgh E1 1JF
Tel: 0131 225 7534
Fax: 0131 220 4819

Society of Archivists
Information House
20 - 24 Old Street
London EC1V 9AP
Tel: 0171 253 5087
Fax: 0171 253 3942

Society of Archivists Film and Sound Group

Information House
20 - 24 Old Street
London EC1V 9AP
Tel: 0171 253 5087
Fax: 0171 253 3942

Standing Conference on Archives and Museums

Secretary, Christine Heap
National Railway Museum
Leeman Road

York YO2 4XJ
Tel: 01904 621262
Fax: 01904 611112

UK Registrars Group

Secretary, Sarah McCormick
National Maritime Museum
London SE10 9NF

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BS 1710: Identification of Pipelines and Services.
BS 4737: Intruder Alarm Systems in Buildings.
BS 5412: Specification for Type H Industrial Vacuum Cleaners for Dusts Hazardous to Health.
BS 5423: Portable Fire Extinguishers.
BS 5454: Storage and Exhibition of Archival Documents *BS 5839: 1989 Fire Detection and Alarm Systems for Buildings Part 1 Code of Practice for System Design, Installation and Servicing.*
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- *Library of Congress Subject Headings* are available online and a microfiche version is published twice a year by the Library of Congress.
- *Library of Congress Thesaurus for Graphic Materials* is available on the World Wide Web at URL: <http://palimpsest.stanford.edu/lex/lctgm/lctgm.html>
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The Committee of National Photographic Collections

The Committee of National Photographic Collections is an informal group of curators which aims to co-ordinate collecting by the major national institutions. Members of the Committee will be glad to give advice on assessing the historic and technical importance of photographic items:

Mark Haworth-Booth (Victoria & Albert Museum)
 Iestyn Hughes (National Library of Wales)
 Peter James (Birmingham Library Services)
 Bridget Kinally (British Film Institute)
 Jo Matthews (Public Record Office)
 Terence Pepper (National Portrait Gallery)
 Hilary Roberts (Imperial War Museum)
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F

List of suppliers of materials for storage of photographic materials

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(papers/boards)

Conservation by Design Ltd

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Bedford MK41 7SL
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Fax: 01379 650 582
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15 Howlett Way
Fison Way Industrial Estate
Thetford
Norfolk IP24 1HZ
Tel: 01842 752341
Fax: 01842 762159
(materials/equipment)

Image Permanence Institute

Rochester Institute of Technology
70 Lomb Memorial Drive
Rochester NY
U.S.A.
Tel: 001 716 475 5199
Fax: 001 716 475 7230
(ANSI publications, testing materials)

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